

Administration Guide - Object Link

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Terminology

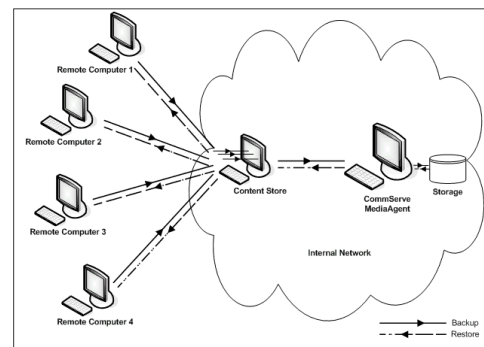
INTRODUCTION

Object Link provides a versatile data repository solution that can be integrated with a wide variety of client components. The powerful architecture provides flexible implementation options to suit diverse functional domains. The Object Link provides a web service interface through which it can be accessed.

You can deploy/implement Object Link in one of the following ways:

- Create your own user interface that implements the web service to connect to the Object Link. This acts as the front-end application through which you back up your data.
- Integrate the web service into your application so that the application data can be backed up to the Object Link seamlessly.
 - The software provides a ready-to-use integration with SAP Archive software. You can link the SAP Archive software to Object Link such the Object Link can be used as a SAP Archive repository.
- Use the standard user interface available with the Calypso suite.

As the Object Link is supported by the CommServe and MediaAgent at the backend, it provides sophisticated storage management features such as encryption, compression, deduplication, retention, and data aging.



KEY FEATURES

Object Link offers the following key features:

MULTI-LEVEL RETENTION

By default, all backup data is retained indefinitely. However, you can remove data that is no longer needed for the future to free up space on the media for new backups. This can be achieved by defining a retention period for the backup data. Object Link offers flexible data retention capability at multiple levels.

Retention can be defined at the following levels:

- Documents/Folders - retention at the granular level applicable to individual documents/folders.
- Site - retention at the site level applicable to all the data stored in the site.
- Storage Policy - retention at the storage policy level applicable to all sites associated with the storage policy.

This multi-level retention control provides the ability to define retention at different hierarchical levels in the document repository. The method used to retain your data will depend upon the needs of your environment.

CONTENT INDEXING

Content Indexing provides the ability to content index and search both your file server/desktop data and protected/archived data for data discovery and other purposes enabling Compliance Officers, Administrators and End-Users to search and restore file system and application data.

Similar to data retention, content indexing can also be defined at multiple levels. Content Indexing rules can be set at the document level as well the site level. This provides flexible content indexing capability.

FULL RANGE OF BACKUP AND RECOVERY OPTIONS

The content store iDataAgent in conjunction with the UNIX File System iDataAgent automatically perform incremental backups of the content residing within the Object Link repositories.

An incremental backup is extremely beneficial because it contains only data that is new or has changed since the last backup, regardless of the type. On average, incremental backups consume far less media and place less of a burden on resources than full backups.

BACKUP AND RECOVERY FAILOVERS

In the event that a MediaAgent used for the backup or recovery operation fails, it is automatically resumed on alternate MediaAgents. In such cases, the

backup or restore job will not restart from the beginning, but will resume from the point of failure. This is especially useful for backups and restores on large SAP databases.

In the event, that a network goes down, the backup and recovery jobs are resumed on alternate data paths. Similarly, in the event of a device failure, the jobs are automatically switched to alternate disk and tape drives.

EFFICIENT JOB MANAGEMENT AND REPORTING

You can view and verify the status of Object Link backup and recovery operations from the Job Controller and Event Viewer windows within the CommCell Console. You can also track the status of the jobs using reports, which can be saved and easily distributed. Reports can be generated for different aspects of data management. You also have the flexibility to customize the reports to display only the required data and save them to any specified location in different formats. For example, you can create a backup job summary report to view at-a-glance the completed backup jobs.

In addition, you can also schedule these reports to be generated and sent to e-mail recipients without user intervention.

For more information on Job Management refer to: File System Archive Job Management.

SPACE MANAGEMENT ALERT TYPE

MODIFY LOW WATERMARK

You can establish a low watermark for each disk library. The low watermark is the minimum amount of free space at which the low watermark warning should be generated. If the amount of free space, for all the combined mount paths, reaches or falls below the low watermark, the system logs a message in the Event Viewer and generates the *Insufficient Storage Alert*, if configured.

THRESHOLDS FOR MANAGED DISK SPACE

Using Managed Disk Space data on disks can be retained as long as possible without running out of disk capacity and affecting future data protection operations. Managed Disk Space provides a way to prune data according to disk capacity in addition to the existing retention criteria which is usually defined by number of days as well as full cycles of data. This adds another layer of retention parameter in addition to specified days/cycles.

Two disk capacity thresholds for managed disk space can be defined. They are:

- A threshold (in percentage) for starting the data aging operation (upper limit)
- A threshold (in percentage) for stopping the data aging (lower limit)

When disk capacity reaches a high threshold, e.g., 85%, older data automatically qualify for removal. They are removed from the disk if they meet their retention criteria and have been copied to appropriate secondary copies. The aging process automatically stops when the disk capacity reaches a low threshold, e.g., 70%.

Once the managed disk is set up the process runs automatically without user intervention to manage disk capacity. Data protection operations are retained on disk longer than usual providing the benefits of disk storage without having to spend manual efforts to manage the disk capacity.

TERMINOLOGY

The Object Link documentation uses the following terminology:

CLIENT	The computer in which the agent is installed and contains the data that will be protected.
SITE	The data path for the content repository on the server (Object Link Client) to which data will be uploaded for data protection.

System Requirements - Object Link

The following requirements are for the Object Link:

OPERATING SYSTEM

LINUX

Red Hat Enterprise Linux/CentOS 5.2 with glibc 2.5.x

HARD DRIVE

1 GB minimum of hard disk space for installing the software.

1 TB of free disk space is required for job result directory.

50 MB of free disk space is required for log directory.

MEMORY

4 GB RAM minimum required; 8 GB RAM recommended

Swap space = 2*RAM size

PROCESSOR

Intel Pentium or compatible processors

PERIPHERALS

DVD-ROM drive

Network Interface Card

MISCELLANEOUS

The File System *iDataAgent* will be automatically installed during installation of this software, if it is not already installed. For System Requirements and install information specific to the File System *iDataAgents*, refer to System Requirements - Linux File System *iDataAgent*.

NETWORK

TCP/IP Services configured on the computer.

The following will be automatically installed during the installation of this software if it is not already installed:

- Apache Tomcat Server, Version 6.x
- PostgreSQL, Version 8.4.x

DISCLAIMER

Minor revisions and/or service packs that are released by application and operating system vendors are supported by our software but may not be individually listed in our System Requirements. We will provide information on any known caveat for the revisions and/or service packs. In some cases, these revisions and/or service packs affect the working of our software. Changes to the behavior of our software resulting from an application or operating system revision/service pack may be beyond our control. The older releases of our software may not support the platforms supported in the current release. However, we will make every effort to correct the behavior in the current or future releases when necessary. Please contact your Software Provider for any problem with a specific application or operating system.

Additional considerations regarding minimum requirements and End of Life policies from application and operating system vendors are also applicable

Install Object Link

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Install Requirements

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- Getting Started
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- Base Software Installation
- Enable Global Filters
- Client Group Selection
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INSTALL REQUIREMENTS

The following procedure describes the steps involved in installing the Object Link and the Unix File System *iDataAgent*.

The Object Link is installed on the computer from which the Agent secures data. (This computer is referred to as the *Client* computer in this install procedure.) A PostgreSQL server database and Apache Tomcat will be automatically installed while installing the software.

Verify that the computer in which you wish to install the software satisfies the minimum requirements specified in System Requirements - Object Link and System Requirements - Linux File System *iDataAgent*.

Review the following Install Requirements before installing the software:

GENERAL

- Review Install Considerations before installing the software.
- Agents should be installed only after the CommServe and at least one MediaAgent have been installed in the CommCell. Also, keep in mind that the CommServe and MediaAgent must be installed and running (but not necessarily on the same computer), before you can install the Agent.
- Ensure there is an available license on the CommServe for the Agent.
- Verify that you have the Software Installation Disc that is appropriate to the destination computer's operating system.

RED HAT LINUX

Red Hat Linux will create an entry in the `/etc/hosts` file when it is first installed, in the following format:

```
<ip_address> <host name> localhost
```

For example, if the host name of your computer is `bluesky`, the entry will look something like this:

```
192.168.1.111 bluesky localhost
```

If you have not already done so, edit the `/etc/hosts` file. The edited entry should look like this:

```
127.0.0.1 localhost
```

Depending upon your environment, and using the above example again, you may also need an entry similar to this:

```
192.168.1.111 bluesky
```

BEFORE YOU BEGIN

- Log on to the client as `root`.
- The install package requires `super-user` permissions to execute.

INSTALL PROCEDURE

GETTING STARTED

1. Place the software installation disc for the Unix platform into the disc drive.
You can also install the product using a disc drive mounted on another computer on the network.
 - On Solaris, double-click the `cvpkgadd` program from the File Manager window.
 - On other Unix platforms, open the Terminal window, navigate to the software installation disc and then enter `./cvpkgadd`.
2. The product banner and other information is displayed.

Press **Enter** to continue.

3. Read the license agreement. Type **y** and press **Enter** to continue.
4. Enter the number corresponding to the setup task you want to perform.

NOTES

- For Install data protection agents on this computer option, follow the steps described in this procedure.
- Advance options provide additional setup features such as record and play setup, creating a custom package and External Data Connector Agent software.

To create a custom package and for record and play setup, follow the steps described in Custom Package - Unix.

To install the External Data Connector Agent, follow the steps described in External Data Connector - Unix.

5. This prompt is displayed only when you are installing on AIX, HP-UX, Linux, or Solaris computers.

Press **Enter** to continue

NOTES

- When you install on non-clustered computer, you must select the number associated with the option **Install on a physical machine**.

6. If you have only one network interface, press **Enter** to accept the default network interface name and continue.

If you have multiple network interfaces, enter the number corresponding to the network interface that you wish to use as default, and then press **Enter** to continue.

NOTES

- The interface name and IP addresses depend on the computer in which the software is installed and may be different from the example shown.

7. Specify the client name for the computer.

Press **Enter** to accept the default name and continue, or
Enter a new client name for the computer and then press **Enter** to continue.

Please select a setup task you want to perform from the list below:

Advance options provide extra setup features such as creating custom package, recording/replaying user selections and installing External Data Connector software.

- 1) Install data protection agents on this computer
- 2) Advance options
- 3) Exit this menu

Your choice: [1]

Certain Calypso packages can be associated with a virtual IP, or in other words, installed on a "virtual machine" belonging to some cluster. At any given time the virtual machine's services and IP address are active on only one of the cluster's servers. The virtual machine can "fail-over" from one server to another, which includes stopping services and deactivating IP address on the first server and activating the IP address/services on the other server.

You now have a choice of performing a regular Calypso install on the physical host or installing Calypso on a virtual machine for operation within a cluster.

Most users should select "Install on a physical machine" here.

- 1) Install on a physical machine
- 2) Install on a virtual machine
- 3) Exit

Your choice: [1]

We found one network interface available on your machine. We will associate it with the physical machine being installed, and it will also be used by the CommServe to connect to the physical machine. Note that you will be able to additionally customize Datapipe Interface Pairs used for the backup data traffic later in the Calypso Java GUI.

Please check the interface name below, and make connections if necessary:

Physical Machine Host Name: [angel.company.com]

Please specify the client name for this machine.

It does not have to be the network host name: you can enter any word here without spaces. The only requirement is that it must be unique on the CommServe.

Physical Machine Client name: [angel]

SELECT COMPONENTS FOR INSTALLATION

8. Enter the number corresponding to the **CVGxOBSRV** module.

A confirmation screen will mark your choice with an "X". Type "d" for **Done**, and press **Enter** to continue.

NOTES

- To select multiple component, enter the number by adding a space.
- Your screen may look different from the example shown.
- Components that either have already been installed, or which cannot be installed, will not be shown.
- In addition, the list of modules that appear depends on the specific Unix File System in which the package is installed. (e.g., **CVGxWA** will appear only when the installation package is run on a Solaris computer.)

Install Calypso on physical machine client.company.com

Select the Calypso module that you would like to install

```
[ ] 1) Media Agent          [1301] [CVGxMA]
[ ] 2) FileSystem IDA      [1101] [CVGxIDA]
>) >>>> NEXT PAGE >>>>>
```

```
[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]
```

Enter number(s)/one of "a,n,r,q,d,>,<,>?" here: 2

BASE SOFTWARE INSTALLATION

9. If you wish to install the agent software for restore only, enter **Yes** and press **Enter** to continue. See Installing Restore Only Agents for more information.

Otherwise, accept **no**, press **Enter** to continue.

10. Type the appropriate number to install the latest software scripts and press **Enter** to

Do you want to use the agents for restore only without consuming licenses? [no]

Installation Scripts Pack provides extra functions and latest support and fix performed during setup time. Please

continue.

NOTES

- Select **Download from the software provider website** to download the latest software scripts from your software provider website.

Make sure you have internet connectivity when you are using this option.

- Select **Use the one in the installation media**, to install the software scripts from the disc or share from which the installation is performed.
- Select **Use the copy I already have by entering its unix path**, to specify the path if you have the software script in an alternate location.

11. Enter **Yes** to download and install the latest service packs and post packs from the software provider.

NOTES

- Internet connectivity is required to download updates.
- This step is applicable for multi instancing.

Press **Enter** to continue.

12. Specify the location where you want to install the software.

NOTES

- The amount of free space required depends on the components selected for install, and may look different from the example shown.

Press **Enter** to accept the default path and continue, or Enter a path and then press **Enter** to continue.

Press **Enter** again to confirm the path.

13. Specify the location for the log files.

NOTES

- All the modules installed on the computer will store the log files in this directory.
- The amount of free space required depends on the components selected for install, and may look different from the example shown.

Press **Enter** to accept the default path and continue, or Enter a path and then press **Enter** to continue.

Press **Enter** again to confirm the path.

14. Indicate whether you would like to launch processes with inherent database access rights.

Press **Enter** to assign a new group, or Type **No** and then press **Enter** to continue.

15. Type a network TCP port number for the Communications Service (CVD) and press **Enter**.

Type a network TCP port number for the Client Event Manager Service (EvMgrC) and press **Enter**.

NOTES

- For more information about Network TCP Ports, see Network TCP Port Requirements.
- For more information about these services, see Services.
- If the port number you entered already exists, a message will be displayed `Port #### is already reserved in /etc/services`. To work around this issue, enter different port number.

16. If this computer and the CommServe is separated by a firewall, type **Yes** and then press **Enter** to continue.

specify how you want to get this pack.

If you choose to download it from the website now, please make sure you have internet connectivity at this time. This process may take some time depending on the internet connectivity.

1) Download from the software provider website.

2) Use the one in the installation media

3) Use the copy I already have by entering its unix path

Your choice: [1] 2

Keep Your Install Up to Date - Latest Service Pack

Latest Service Pack provides extra functions and latest support and fix for the packages you are going to install. You can download the latest service pack from software provider website.

If you decide to download it from the website now, please make sure you have internet connectivity at this time. This process may take some time depending on the internet connectivity.

Do you want to download the latest service pack now? [no]

Press <ENTER> to continue ...

Please specify where you want us to install Calypso binaries.

It must be a local directory and there should be at least 176MB of free space available. All files will be installed in a "calypso" subdirectory, so if you enter "/opt", the files will actually be placed into "/opt/calypso".

Installation Directory: [/opt]

..

Calypso will be installed in /opt/calypso.

Press ENTER to continue ...

Please specify where you want to keep Calypso log files.

It must be a local directory and there should be at least 100MB of free space available. All log files will be created in a "calypso/Log_Files" subdirectory, so if you enter "/var/log", the logs will actually be placed into "/var/log/calypso/Log_Files".

Log Directory: [/var/log]

..

Calypso log files will be created in /var/log/calypso/Log_Files.

Press ENTER to continue ...

Most of Calypso processes run with root privileges, but some are launched by databases and inherit database access rights. To make sure that registry and log files can be written to by both kinds of processes we can either make such files world-writeable or we can grant write access only to processes belonging to a particular group, e.g. a "calypso" or a "dba" group.

We highly recommend now that you create a new user group and enter its name in the next setup screen. If you choose not to assign a dedicated group to Calypso processes, all temporary and configuration files will be created with -rw-rw-rw permissions.

If you're planning to backup Oracle DB you should use "dba" group.

Would you like to assign a specific group to Calypso? [yes]

Every instance of Calypso should use a unique set of network ports to avoid interfering with other instances running on the same machine.

The port numbers selected must be from the reserved port number range and have not been registered by another application on this machine.

Please enter the port numbers.

Port Number for CVD : [8600]

Port Number for EvMgrC: [8602]

Is there a firewall between this client and the CommServe? [no]

For firewall options and configuration instructions, see Firewall Configuration and continue with the installation.

If you do not wish to configure the firewall services, type **No** and then press **Enter** to continue.

17. Type the name of the CommServe computer and press **Enter** to continue.

NOTES

- Ensure that the CommServe is accessible before typing the name; otherwise the installation will fail.
- If you enter a short name which resolves to the same IP address as the fully qualified CommServe name, you will be asked if you would prefer to use the fully qualified name.

18. Enter the **username** and **password** information for an external domain user account or a CommCell user account. This authorizes the installation of an agent on the CommCell.

NOTES

- This is only displayed when the **Authentication for Agent** feature is enabled in the CommCell Properties. Users must belong to a User Group with Agent Management capabilities to enable this feature. For more information, see Authentication for Agent Installs.

Click **Enter** to continue.

Please specify hostname of the CommServe below. Make sure the hostname is fully qualified, resolvable by the name services configured on this machine.

CommServe Host Name:

Enter your CommCell user name and password:

User Name :

Password :

Press <ENTER> to continue ...

ENABLE GLOBAL FILTERS

19. Type the appropriate number for configuring Global Filters for the default subclient and press Enter to continue.

NOTES

- Select **Use Cell level Policy** to inherit the global filter policy configuration set for the CommCell, i.e., if the **Use Global Filters on All Subclients** option is selected in the **Global Filters** dialog box (from the CommCell Console's Control Panel), then this policy will be applied to the default subclient as well. If is not selected, then the global filters will not be applied to the default subclient.
- Select **Always use Global filters** to always apply the global filters policy to the default subclient regardless of the policy set for the CommCell.
- Select **Do not use Global filters** to disregard applying the global filters to the default subclient regardless of the policy set for the CommCell.

Commcell Level Global Filters are set through Calypso GUI's Control Panel in order to filter out certain directories or files from backup Commcell-widely. If you turn on the Global filters, they will be effective to the default subclient. There are three options you can choose to set the filters.

- 1) Use Cell level policy
- 2) Always use Global filters
- 3) Do not use Global filters

Please select how to set the Global Filters for the default subclient? [1]

CLIENT GROUP SELECTION

20. Type the number of a Client Group and press **Enter**.

A confirmation screen will mark your choice with an "X". Type **d** for done with the selection, and press **Enter** to continue.

NOTES

- This screen will be displayed only if Client Groups are configured for the CommCell. For more information, see Client Computer Groups.

Client Group(s) is currently configured on CommServe cs.company.com. Please choose the group(s) that you want to add this client client.company.com to. The selected group(s) will be marked (X) and can be deselected if you enter the same number again. After you are finished with the selection, select "Done with the Selection".

```
[ ] 1) Unix
[ ] 2) DR
[ ] 3) DKS
```

```
[a=all n=none r=reverse q=quit d=done >=next <=previous ?
=help]
```

Enter number(s)/one of "a,n,r,q,d,>,<,<?" here: 2

```
+-----+
```

IMPORTANT:

In addition to installing Calypso on this computer, you will also need to create a Job Schedule for each iDataAgent that has been installed on this client computer.

Job Schedules are required to allow the Calypso iDataAgents to perform automated backup and restore operations.

Job Schedule creation can be accomplished through the Calypso CommCell Console administration interface.

```
+-----+
```

21. Press **Enter** to continue.

NOTES

- Schedules help ensure that the data protection operations for the Agent are automatically performed on a regular basis without user intervention. For more information, see Scheduling.

STORAGE POLICY SELECTION

22. Enter the number corresponding to the storage policy through which you want to backup the File System iDataAgent and then press **Enter** to continue.

Please select one storage policy for this IDA from the list below:

NOTES

- A storage policy directs backup data to a media library. Each library has a default storage policy.
- When you install an Agent, the install program creates a default subclient for most Agents.
- If desired, you can change your storage policy selection at any time after you have installed the client software.
- If this screen appears more than once, it is because you have selected multiple agents for installation and are configuring storage policy association for each of the installed agents.

23. Type the path or accept the default path for storing the database.

Provide a password for super-user to access the database and press **Enter** to continue.

24. Type the port number or accept the default port number to connect the Server and then press **Enter** to continue.

25. Type the port number or accept the default port number to run the web services and then press **Enter** to continue.

26. Type or accept the default URL for webservice and then press **Enter** to continue.

27. This prompt is displayed only when you are installing on HP-UX, Linux, or Solaris computers. Enter the number corresponding to the **Exit** option and then press **Enter** to continue.

The installation is now complete.

```
1) SP_StandAloneLibrary2_2
2) SP_Library3_3
3) SP_MagLibrary4_4
4) fornax_fornax_HWCmp
5) ranger_ranger_HWCmp
6) fornax_fornax_CIntCmp
7) fornax_fornax_MACmp
8) fornax_fornax_NoCmp
```

Storage Policy: [3]

Please specify the directory where OBJSERVER Database will be installed.

Database Installation Directory: [/opt]

Please provide a password for the database superuser.

A locked Unix user account will be created if not present.

Password:

Re-enter the password for confirmation:

Password:

Please select the port number the server should listen on.

Port: [5432]

Creating DataBase for the ObjectServer IDA...done.

Database created successfully.

Please provide a port number for the webservice to run.

Port: [8080]

Please provide URL of webservice.

Webservice URL: [angel.company.com]

Tomcat installed successfully.

Certain Calypso packages can be associated with a virtual IP, or in other words, installed on a "virtual machine" belonging to some cluster. At any given time the virtual machine's services and IP address are active on only one of the cluster's servers. The virtual machine can "fail-over" from one server to another, which includes stopping services and deactivating IP address on the first server and activating the IP address/services on the other server.

Currently you have Calypso installed on physical node stone.company.com.

Now you have a choice of either adding another package to the existing installation or configure Calypso on a virtual machine for use in a cluster.

```
1) Add another package to stone.company.com
2) Install Calypso on a virtual machine
3) Exit
```

Your choice: [1]

POST-INSTALL CONSIDERATIONS

GENERAL

Install post-release updates or Service Packs that may have been released after the release of the software. When you are installing a Service Pack, ensure that it is the same version as the one installed in the CommServe Server. Alternatively, you can enable Automatic Updates for quick and easy installation of updates in the CommCell component.

Configuration - Object Link

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Add a Client

Create a Site

OVERVIEW

Once Object Link is installed, you must configure it as a repository before files can be uploaded for data protection. To configure Object Link, complete the following tasks:

- Add a Object Link Client to your CommCell so it can support data protection, deduplication and content indexing operations.
- Define the sites (repositories) where your data will reside on the server.

Refer to the following sections for step-by-step instructions.

ADD A CLIENT

This section describes how to add a client for the Content Store iDataAgent in order to define the repository on the server.

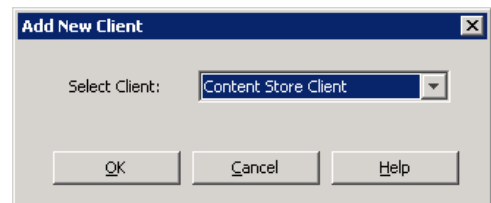
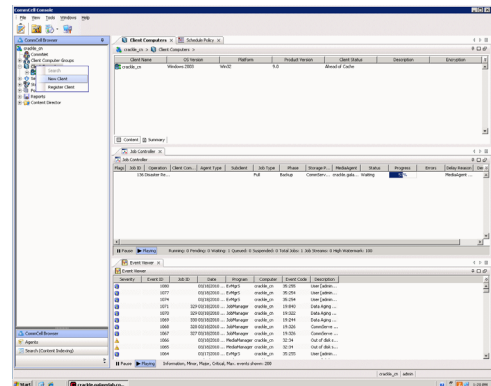
PREREQUISITES

The content store iDataAgent requires the following licenses:

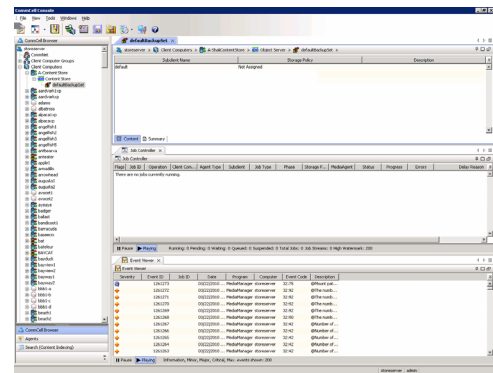
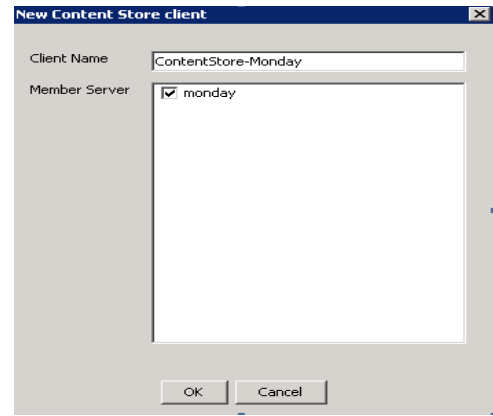
- *iDataAgent for Linux File System* - This license is consumed during the installation of the content store iDataAgent software.
- *Content Store* - This license is consumed when the client is configured from the CommCell Console.

To add a client:

- From the CommCell Browser, navigate to **Client Computers**
 - Right-click on the client computer node, and select **New Client**.
- From the **Add New Client** dialog box, select **Content Store Client**.
 - Click **OK**.
- From the **New Content Store Client** dialog box, enter name of the Content Store client, which is how it will appear in the CommCell Console.
 - Select the member server, which is the client computer on which the Content Store iDataAgent is installed.
 - Click **OK**.



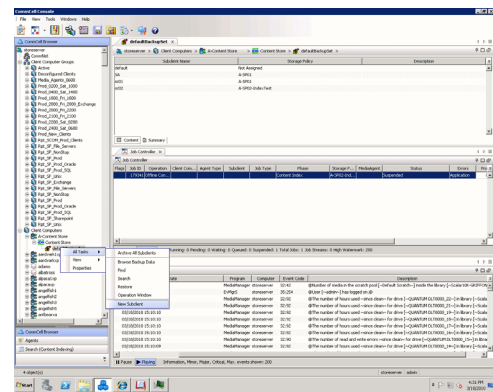
- The Content Store client will now appear as a client computer node in the CommCell Browser.



CREATE A SITE

You need to first create a subclient before you create a site. Follow the steps given below to create a Object Link subclient and link it to the defined site:

- From the CommCell Browser, navigate to **Client Computers | Content Store**
 - Right-click the **default BackupSet | All Tasks | New Subclient**



- From **Subclient Properties | General**, enter the name of the subclient and a description if desired.
 - Select the **Storage Device** tab.

- 3.
- From the **Data Storage Policy** tab, select the storage policy to associate with the new subclient.
 - If necessary, click the **Create Storage Policy** button to create a new storage policy for this subclient.
 - Click **OK** to save the subclient.
 - Note that the subclient created has no content, since it has not yet been linked to a site.

Subclient Properties of

General | Storage Device | Filters | Activity Control | Encryption | Content

Client Name: A-Content Store

Billing Department:

IDataAgent: Content Store

Backup Set: defaultBackupSet

Subclient name: Content Store Subclient

Description

OK Cancel Help

Subclient Properties of

General | Security | Storage Device | Filters | Activity Control | Pre/Post Process | Encryption | Content

Data Storage Policy | Data Transfer Option | Deduplication

Storage Policy:

Incremental Storage Policy: N/A

Create Storage Policy

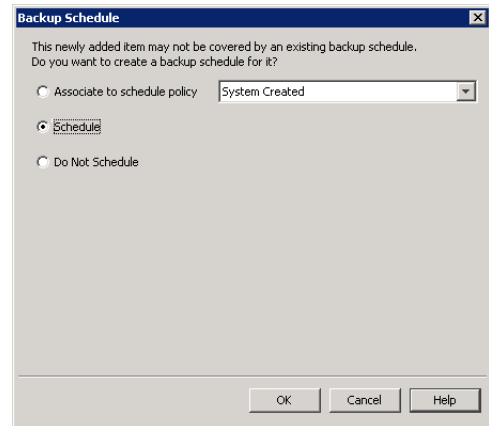
Data Paths

Data Paths

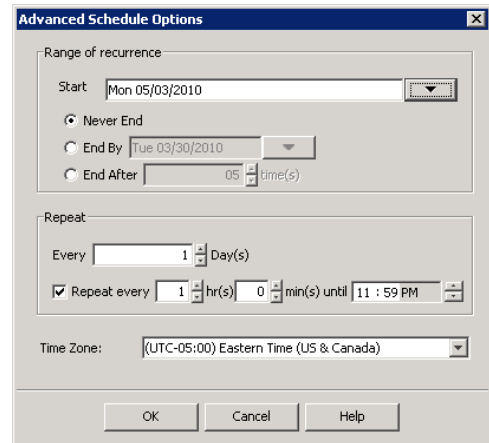
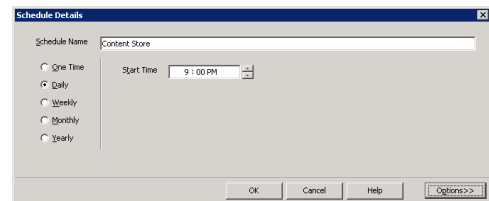
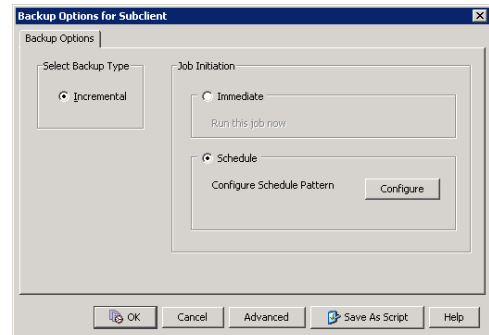
OK Cancel Help

- 4.
- Once the Content Store subclient is defined, the **Backup Schedule** dialog box is automatically launched so that you can create the schedule for the data protection operations.
 - Select **Schedule** from the options provided to specifically schedule the backup for the Content Store subclient.
 - Click **OK**.

5. From the **Backup Options** dialog box, click **Configure** to create the schedule pattern.

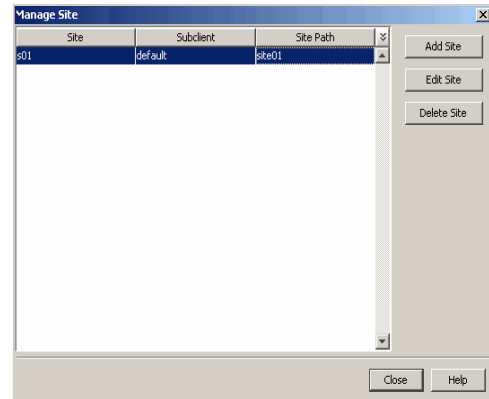
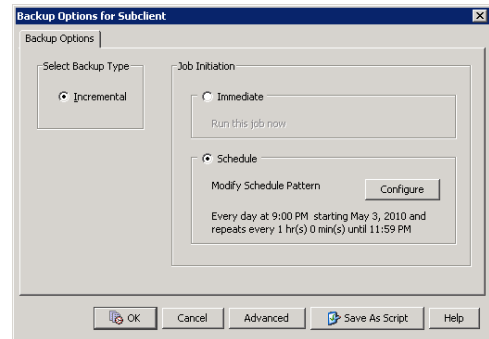


- 6.
- From the **Schedule Details** dialog box, select the type of schedule.
 - You can create a daily schedule for the backup operations of the Content Store subclient, which only supports incremental backups. An incremental backup is extremely beneficial because it contains data that is new or has changed since the last backup, consuming less media.
 - Click **Options**.
- 7.
- From the **Advanced Schedule Options** dialog box, select the pattern options.
 - With incremental backups, you can schedule backups to occur hourly by selecting the Repeat field, and specifying the values accordingly.
 - Click **OK**.



- 8.
- The defined schedule and pattern will appear on the **Backup Options** dialog box.
 - Click **OK**.

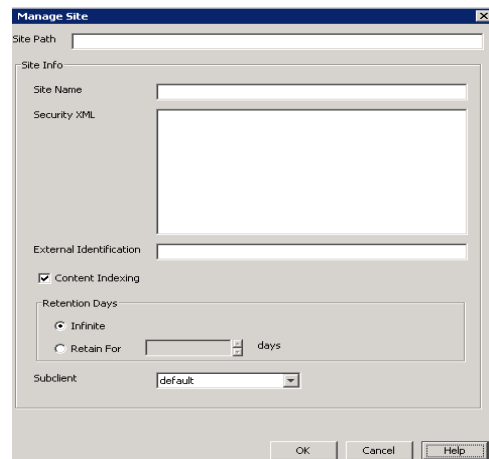
- 9.
- From the CommCell Browser, navigate to **Client Computers | Content Store**
 - Right-click the **Content Store |DataAgent | All Tasks | Manage Site**
 - The **Manage Site** dialog box appears with the following information:
 - Site:** Displays the name of the site
 - Subclient:** Displays the name of the subclient associated with this site
 - Site Path:** Displays the URL or path to the site
 - Click the **Add Site** button to define a content repository.



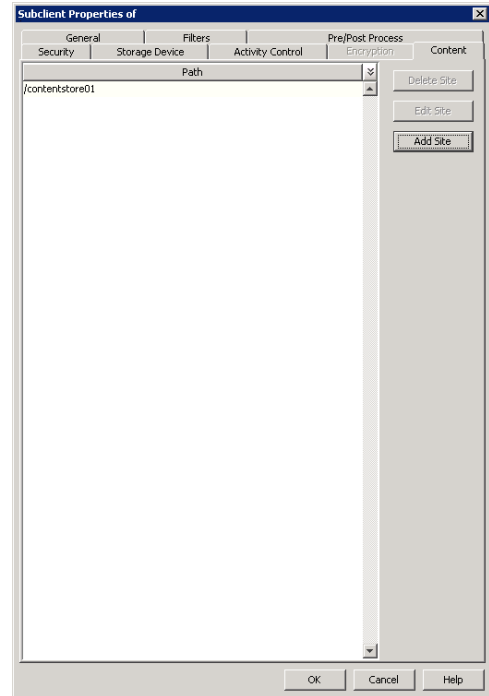
- 10.
- From the **Add Site** dialog Box, enter the following information:
 - URL:** Enter the directory path of the site. This is the repository on the server where the files will be uploaded. Note that the URL must be entered in the following format: `/finance_site1`.
 - Site Name:** Enter the friendly name for the site.
 - Security XML:** is required for the site that is created. Below is an illustration for SAP:


```
<?xml version="1.0" ?><SapCS_SAPCSDocHeader docStatus="running"
boundary="test Content Repository"
docProt="crud"></SapCS_SAPCSDocHeader>
```

 - In the XML string above:
 - The **docStatus** must always be in the "running" mode.
 - The **boundary** can be any valid string so that the xml format is fixed. For example: "test content repository".
 - The **docProt** value can be a blank string, c, r, u, d or any combination of 'crud'.
 - External Identification:** Enter the third party identifier here.
 - Retention Days:** Specify the retention period for the site. The retention period will apply to all the contents within the repository. Note that this retention period can be overwritten by the subclient's associated storage policy copy's defined retention if defined for a longer period, unless it is overwritten by pinning the job.
 - Content Indexing:** Content Indexing
 - Retention Days:**
 - Infinite
 - Retain For days
 - Subclient:** Displays a list of the available subclients, select the one to be associated with this site. The site will be added in the selected subclient.
 - Click **OK**.



- 11.
- To verify if the site you added is displayed, go to the **Path** windowpane of the **Subclient Properties - Content** tab.
 - Click **OK**.
 - The Content Store subclient is linked to the defined site as the repository.



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Configuration - Object Link

Basic | **Advanced**

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OVERVIEW

Based on your environment, you may need to further tune your Object Link sites or subclients. Following are the additional configurations that you can use to configure this agent.

MODIFYING A SITE

If your environment requires the defined site's parameters to be modified, you can change the following:

- Retention Definitions
- Site Name (Friendly Name)
- Content Indexing

It is not recommended that you modify the site's data path. Changing the data path for the repository would render job failures leading to possible data loss. If it is necessary to make changes to the data path, it is recommended that another site be created where data could reside.

To modify the site parameters:

1. From the CommCell Browser, navigate to the Object Link BackupSet.
2. Right-click on the subclient containing the sites (repositories) that must be modified, and select **Properties**.

3. From the **Subclient Properties** dialog box, select the **Content** tab.
4. Select the Site to edit, and click **Edit**.
5. Modify the site parameters as necessary.
6. Click **OK** to save your changes.

CONSIDERATIONS

If you plan to change the associated data storage policy of a subclient that has been backed up/archived, keep in mind the following considerations:

- Verify that the retention period of the primary copy of the target storage policy satisfies your requirements. If necessary, either change the retention period of the primary copy or create a new storage policy with a primary copy that has the desired retention period.
- When assessing retention periods, be particularly careful in the case of multiple subclients. To maintain consistency, we recommend that the data for all subclients within an agent/backup set/instance/database/partition expire at the same time. Therefore, if you change storage policy associations, you should keep in mind the retention periods of any sibling subclient data as well.
 - For the Image Level iDataAgent, if you have assigned volumes from a single database to multiple subclients, all of those subclients should have the same retention period.
- The data that was backed up/archived through the previous storage policy remains valid for the length of time expressed in the associated retention period. Since the data remains valid, you can still recover/retrieve it if necessary.
- All subclient data that was backed up through the previous storage policy will be aged based on its storage policy copy retention time (days) rule only. If you select to run a full backup after changing the storage policy, all subclient data on the new storage policy will be aged according to its retention time and cycle rules. If you select to run a non-full backup as the next backup operation, it is recommended that you run a full backup as soon as possible. All non-full backups run before a full backup will be retained as a partial cycle according to the new storage policy copy's retention cycle rule (even though not a full cycle). The non-full backups (partial cycle) will be aged when the new storage policy copy's retention time and cycle rules are met.

RETENTION

Retention is the defined period of time for your data to be retained and protected, after which it can then be deleted from the media on which it resides. Once data is deleted, the media can be recycled, which reduces storage and associated costs. With different types of data requiring different retention periods, Object Link allows you define retention in various ways to meet these requirements.

Retention can be defined at the following levels:

- The Object Link subclient's associated storage policy
- The user-defined sites (repositories) on the Object Link Client
- The specific document being uploaded to the Object Link Client

Since there are several methods to define the retention rules for your Object Link data, the precedence in which the rules are honored should be noted. The maximum retention is honored when specified by the associated storage policy. If the site and specific document submission levels are defined as infinite, but the subclient's associated storage policy is defined as 1 month, the honored retention is that of the storage policy. This is to effectively manage your data since, by default, all data is retained indefinitely.

DEFINING RETENTION AT THE STORAGE POLICY LEVEL

When data is retained according to the subclient's associated storage policy, data can be pruned (deleted) from media once all defined retention rules have been met for that storage policy. Storage Policy retention is defined during its configuration. While creating the storage policy, you can specify whether the primary copy of the data is retained for a specific number of days or indefinitely; by default, all data is retained indefinitely.

This retention method is the default for your environment because when you create a subclient, you must associate that subclient with a storage policy, which enables the data protection/archive operations and recovery/retrieve operations to be conducted for the subclient's data. Since you can point multiple subclients to a storage policy, this method is extremely useful when your environment requires the same retention period for data. Limiting the number of storage policies in your environment better utilizes your media since media cannot be shared across storage policies. This means using less media to store your data.

To retain your Object Link data according to the subclient's associated storage policy, the retention rules for the user-defined sites (repositories) on the Object Link Client and the specific document being uploaded to the Object Link Client must be defined as infinite (retained indefinitely). With this, the storage policy retention can be defined in terms of days, and this retention rule will be honored.

To modify the retention rules of a storage policy:

1. From the CommCell Browser, select the storage policy associated with the Object Link subclient for which you need to modify the retention rules. Right-click on the associated storage policy copy, and select **Properties**.
2. From the **Retention** tab of the **Copy Properties** dialog box, you can:
 - **Enable/Disable Data Aging**. Data Aging is the operation run to delete data that has met all retention rules so that media can be recycled. Data Aging must be enabled to set retention rules.

- o Enable **Managed Disk Space for disk data**. This is only enabled when the copy points to a disk library.
 - o Set the Basic Retention Rules for All Backups and Data/Compliance Archiver Data.
3. Optionally, you can set extended retention rules in the **Extended Retention Rules** pane by:
 - o Selecting the number of days to keep All Fulls, the Weekly Full, Monthly Full, Quarterly Full, Half Yearly Full, or the Yearly Full.
 - o Selecting the start time of the weekly, monthly, or yearly rule.
 - o Selecting the **First full backup of time period** radio button if you want the first full backup of each Extended Retention Rule retained, or select the **Last full backup of time period** (the default) radio button if you want the last full backup of each Extended Retention Rule retained.
 4. Click **OK** to save your changes.

DEFINING RETENTION AT THE SITE LEVEL

When data is retained according to the site level retention, all data residing within the defined site (repository) can be pruned (deleted) from media once the retention rules defined for the site have been met. Site retention is defined during its configuration. While creating the site on the Object Link client, you can specify that the site's contents are retained for a specific number of days or indefinitely; by default, all data is retained indefinitely. Once the site is created, you can modify the retention definitions by accessing the site's properties.

This retention method is useful when all content within the site requires the same retention.

To retain your Object Link data according to the user-defined sites (repositories) on the Object Link Client, the subclient's associated storage policy and the specific document being uploaded to the Object Link Client must be defined with a lower retention than the Site. With this, the site's retention can be defined in terms of days, and this retention rule will be honored.

To modify the retention rules of a site:

1. From the CommCell Browser, navigate to the Content Store BackupSet.
2. Right-click on the subclient containing the sites (repositories) that must be modified, and select **Properties**.
3. From the Subclient Properties dialog box, select the **Content** tab.
4. Select the site to edit, and click **Edit**.
5. Modify the retention rules for this site.
6. Click **OK** to save your changes.

DEFINING RETENTION AT THE SPECIFIC DOCUMENT LEVEL

When retention is defined at the document level, the content can only be pruned (deleted) once the retention rules defined for the specific document have been met. This retention is defined during submission of the document to the Object Link from the SAP Archive Link application. You can specify that the document is retained for a specific number of days or indefinitely; by default, all data is retained indefinitely.

This retention method is useful when the specific document requires specific retention.

To retain your Object Link data according to the specific document, the subclient's associated storage policy and Object Link Client site's retention must be defined with lower retention than the specific document. With this, the document or folder retention can be defined in terms of days, and this retention rule will be honored.

CONTENT INDEXING

Content Indexing provides the ability to content index and search both your file server/desktop data and protected/archived data for data discovery and other purposes enabling Compliance Officers, Administrators and End-Users to search and restore file system and application data.

Offline Content Indexing is used to content index the storage data secured by the various data protection/data archive operations. For this reason the configuration of the Offline Content Indexing is associated with a storage policy. Each storage policy must be configured to use a Content Indexing Engine, if content indexing is enabled in the storage policy. The MediaAgent associated with the Storage Policy will be used for reading the data associated with the storage policy. Offline content indexing is supported for all types of data including compressed, deduplicated and encrypted data.

LICENSE REQUIREMENTS

This feature requires a Feature License to be available in the CommServe® Server.

Review general license requirements included in License Administration. Also, View All Licenses provides step-by-step instructions on how to view the license information.

DEDUPLICATION

Deduplication identifies and eliminates the duplicate items in a data protection operation. When data is backed up for the first time, it is stored physically. If the same data is subsequently identified in another data protection operation, then it is stored as a pointer to the previously stored copy. For example, consider a mail system backup where the same (5 MB) sales presentation is available in 30 inboxes. Instead of storing 30 copies of the 5 MB presentation, deduplication-

enabled backup will only store a single copy of the 5 MB attachment and have pointers to the saved copy. The efficient use of storage space enables large volumes of backup data to be stored, reducing the cost of backup storage, which facilitates longer retention periods.

Deduplication at the data block level compares blocks of data against each other. If an object (file, database, etc.) contains blocks of data that are identical to each other, then block level deduplication eliminates storing the redundant data and reduces the size of the object in storage. This way dramatically reduces the backup data copies on both disks and tapes.

To enable deduplication for a primary storage policy copy:

1. From the CommCell Browser, right-click the **Storage Policies** node, and select **New Storage Policy** from the shortcut menu.
2. Follow the prompts displayed in the Storage Policy Wizard to configure the following:
 - Type of Storage Policy: `Backup`, `Compliance Archiver` or `Disaster Recovery Backup`
 - Designate Storage Policy for Legal Hold: `Yes` or `No`

This is only applicable for Backup, Compliance Archiver storage policies. Legal Hold designation status cannot be changed at a later time.
 - Name of Storage Policy (and Incremental Storage Policy, if selected)
 - Name of the Primary Copy
 - Name of the default library to which the Primary Copy should be associated. This must be a disk library.
 - Name of the MediaAgent
 - Stream and Retention Configuration (default is infinite)
 - Select `Yes` for Deduplication. Select the Deduplication Type: `Block Level` or `Object Level`. If you do not have a object level deduplication license, `Block Level` is selected by default.
 - If you wish to enable deduplication at the source, select the `Enable Client Side Deduplication` option.
3. The **Review Summary** window is displayed. Review your selections and then click **Cancel**, **Back** (to return to a previous window to change a selection), or **Finish** (to exit and create the storage policy).
4. The Storage Policy and the Primary copy are created.

LICENSE REQUIREMENTS

This feature requires a Feature License to be available in the CommServe® Server.

Review general license requirements included in License Administration. Also, View All Licenses provides step-by-step instructions on how to view the license information.

The following license is required for this feature:

Block Level De-Duplication license for using deduplication. One license is required for each MediaAgent hosting the Deduplication Store.

CACHE MANAGEMENT

The Space Check feature monitors consumed space and free space remaining for components which are integral to the operation of the software and where limited space may cause operations to go into an unstable state. With this, your Object Link cache directory is automatically managed on a daily basis. By default, the cache directory has a maximum space threshold of 85% (of its capacity) and a low disk space threshold of 15% (of its capacity). This means that once the space check finds that the cache directory has reached its maximum capacity (85%), all files or folders that have been protected will be deleted. The files will be deleted until the cache directory is at its minimum capacity (15%).

Object Link and SAP Archiving Interface

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Set Up Object Link for SAP Archiving Interface

Add a Client

Create a Site

Link SAP Archiving Interface to the Object Link

OVERVIEW

The Object Link for SAP Archiving Interface is an implementation of SAP ArchiveLink (protocol 0045) which provides an interface between SAP R/3 and the content store *iDataAgent*.

The Object Link for SAP Archiving Interface provides a mechanism to store SAP contents such as scanned invoices, print lists, outgoing documents or SAP Data archive files. These documents/data are stored using the content store *iDataAgent* and made accessible to SAP R/3 on demand. The content store *iDataAgent* would essentially handle all of SAP document storage needs using our optimized storage solution.

In customizing SAP, the customer can choose certain image documents reflecting the Business Objects be archived in a particular content repository. The ArchiveLink is the generic interface for archiving; almost all SAP application areas use this interface by customizing the generic business object service for archiving in the given SAP application.

INSTALL THE OBJECT LINK

For information on how to install the Object Link, refer to section: Deployment - Object Link.

SET UP OBJECT LINK FOR SAP ARCHIVING INTERFACE

Once the content store *iDataAgent* is installed, you must configure it to act as a repository for files to be uploaded to the Object Link server. To configure the *iDataAgent*, you must add a Object Link Client to the CommCell and create a subclient defined with sites for the repository. After the site and subclient are configured, user can configure the Object Link to link to the SAP Archiving Interface.

ADD A CLIENT

This section describes how to add a client for the Content Store *iDataAgent* in order to define the repository on the server.

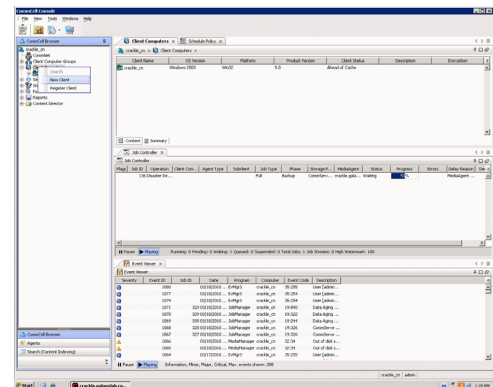
PREREQUISITES

The content store *iDataAgent* requires the following licenses:

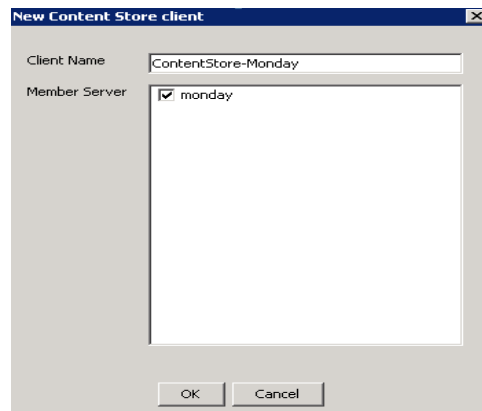
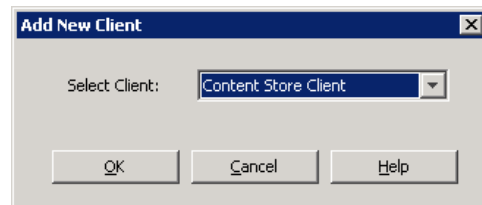
- *iDataAgent for Linux File System* - This license is consumed during the installation of the content store *iDataAgent* software.
- *Content Store* - This license is consumed when the client is configured from the CommCell Console.

To add a client:

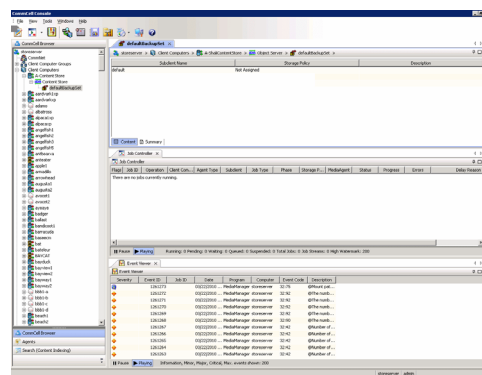
- From the CommCell Browser, navigate to **Client Computers**
 - Right-click on the client computer node, and select **New Client**.
- From the **Add New Client** dialog box, select **Content Store Client**.
 - Click **OK**.



3.
 - From the **New Content Store Client** dialog box, enter name of the Content Store client, which is how it will appear in the CommCell Console.
 - Select the member server, which is the client computer on which the Content Store iDataAgent is installed.
 - Click **OK**.



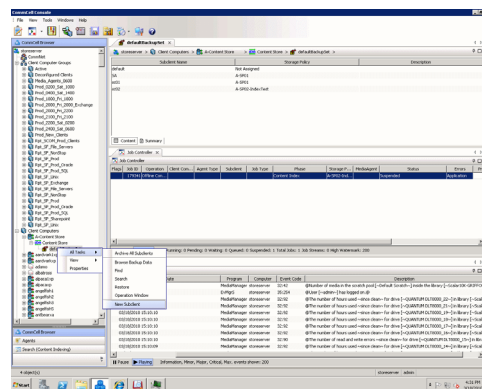
4. The Content Store client will now appear as a client computer node in the CommCell Browser.



CREATE A SITE

You need to first create a subclient before you create a site. Follow the steps given below to create a Object Link subclient and link it to the defined site:

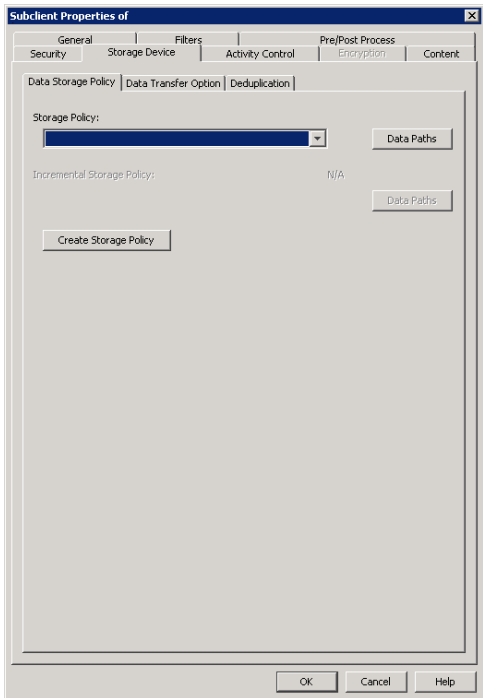
1.
 - From the CommCell Browser, navigate to **Client Computers | Content Store**
 - Right-click the **default BackupSet | All Tasks | New Subclient**



2.
 - From **Subclient Properties | General**, enter the name of the subclient and a description if desired.
 - Select the **Storage Device** tab.



3.
 - From the **Data Storage Policy** tab, select the storage policy to associate with the new subclient.
 - If necessary, click the **Create Storage Policy** button to create a new storage policy for this subclient.
 - Click **OK** to save the subclient.
 - Note that the subclient created has no content, since it has not yet been linked to a site.



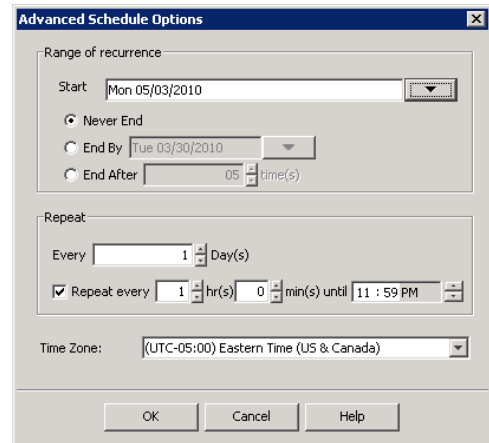
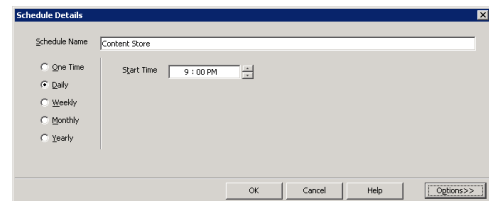
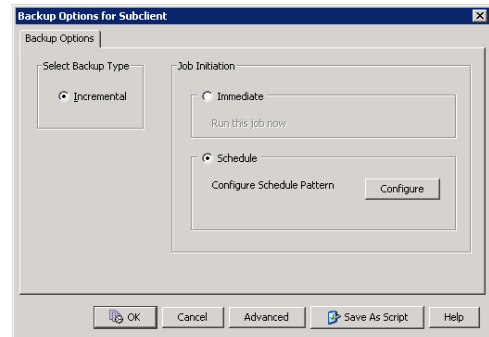
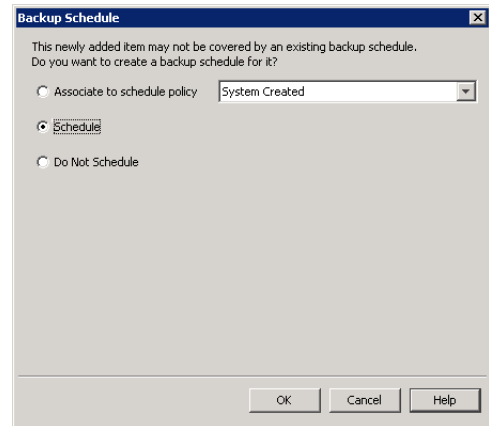
4.
 - Once the Content Store subclient is defined, the **Backup Schedule** dialog box is automatically launched so that you can create the schedule for the data protection operations.
 - Select **Schedule** from the options provided to specifically schedule the backup for the Content Store subclient.
 - Click **OK**.

5. From the **Backup Options** dialog box, click **Configure** to create the schedule pattern.

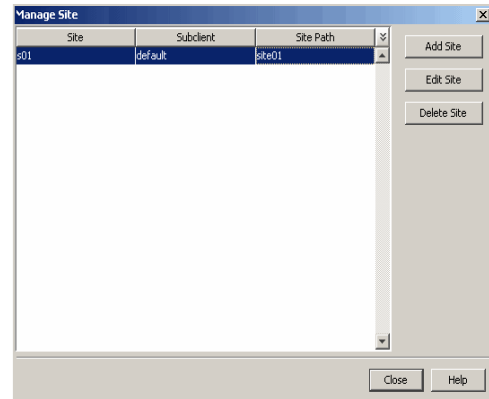
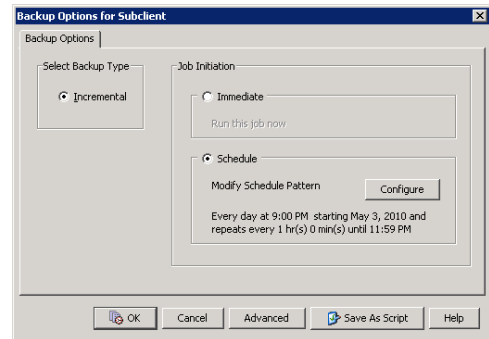
6.
 - From the **Schedule Details** dialog box, select the type of schedule.
 - You can create a daily schedule for the backup operations of the Content Store subclient, which only supports incremental backups. An incremental backup is extremely beneficial because it contains data that is new or has changed since the last backup, consuming less media.
 - Click **Options**.

7.
 - From the **Advanced Schedule Options** dialog box, select the pattern options.
 - With incremental backups, you can schedule backups to occur hourly by selecting the Repeat field, and specifying the values accordingly.
 - Click **OK**.

8.
 - The defined schedule and pattern will appear on the **Backup Options** dialog box.
 - Click **OK**.

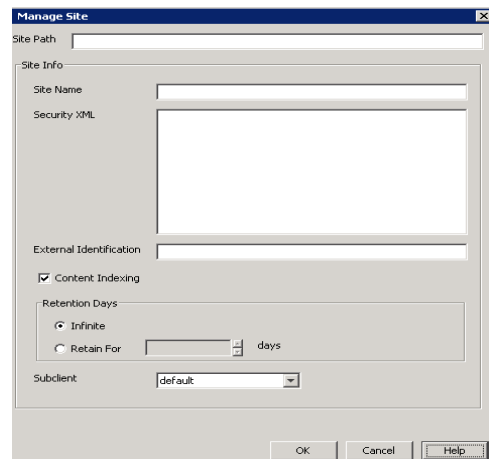


- 9.
- From the CommCell Browser, navigate to **Client Computers | Content Store**
 - Right-click the **Content Store |DataAgent | All Tasks | Manage Site**
 - The **Manage Site** dialog box appears with the following information:
 - Site:** Displays the name of the site
 - Subclient:** Displays the name of the subclient associated with this site
 - Site Path:** Displays the URL or path to the site
 - Click the **Add Site** button to define a content repository.

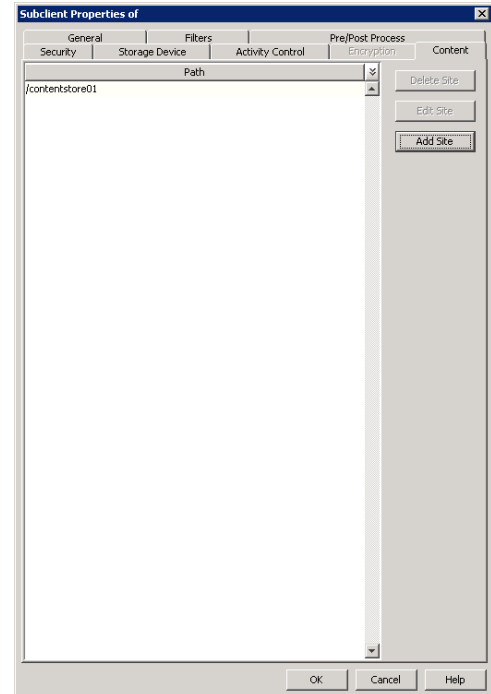


- 10.
- From the **Add Site** dialog Box, enter the following information:
 - URL:** Enter the directory path of the site. This is the repository on the server where the files will be uploaded. Note that the URL must be entered in the following format: `/finance_site1`.
 - Site Name:** Enter the friendly name for the site.
 - Security XML:** is required for the site that is created. Below is an illustration for SAP:


```
<?xml version="1.0" ?><SapCS_SAPCSDocHeader docStatus="running"
boundary="test Content Repository"
docProt="crud"></SapCS_SAPCSDocHeader>
```
 - In the XML string above:
 - The **docStatus** must always be in the "running" mode.
 - The **boundary** can be any valid string so that the xml format is fixed. For example: "test content repository".
 - The **docProt** value can be a blank string, c, r, u, d or any combination of 'crud'.
 - External Identification:** Enter the third party identifier here.
 - Retention Days:** Specify the retention period for the site. The retention period will apply to all the contents within the repository. Note that this retention period can be overwritten by the subclient's associated storage policy copy's defined retention if defined for a longer period, unless it is overwritten by pinning the job.
 - Infinite** (selected)
 - Retain For** [] days
 - Subclient:** Displays a list of the available subclients, select the one to be associated with this site. The site will be added in the selected subclient.
 - Click **OK**.



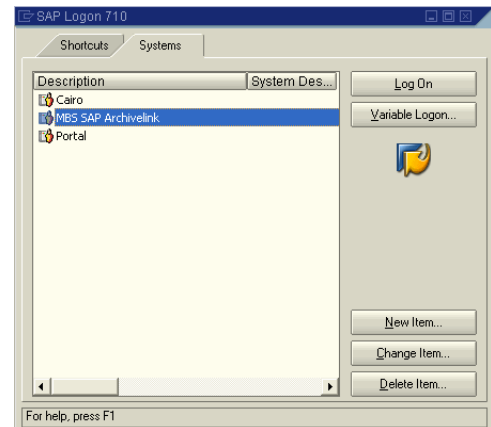
- 11.
- To verify if the site you added is displayed, go to the **Path** windowpane of the **Subclient Properties - Content** tab.
 - Click **OK**.
 - The Content Store subclient is linked to the defined site as the repository.



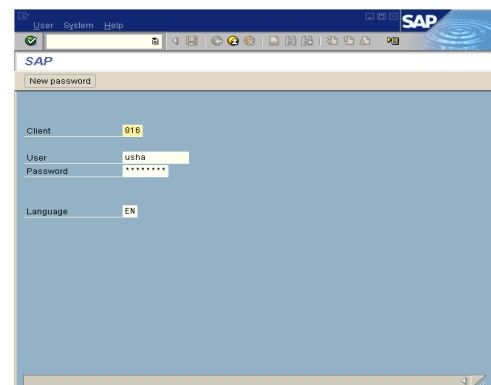
LINK SAP ARCHIVING INTERFACE TO OBJECT LINK

This section describes how to configure the Object Link to be also used as a SAP Archive repository, in order to manage SAP data. Before customizing the Object Link for SAP Archiving Interface to use the Object Link for storing data, user must have already created a site and subclient in the Object Link repository.

1. Double click the **SAP Logon** icon.
From the **SAP Logon** select the **Systems** tab. Double-click on the **MBS SAP Archivelink** option.

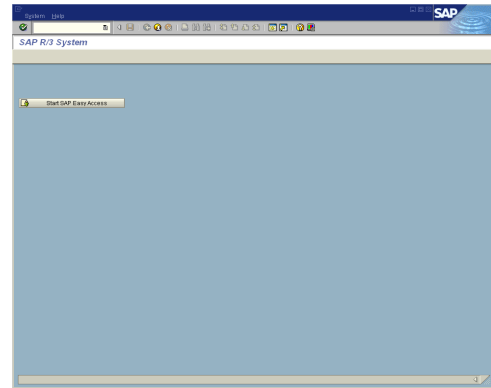


2. From the **SAP Logon** window enter valid credentials for **Client**, **User**, **Password** and **Language**.
To change your password click the **New password** icon.
Click the **ENTER** icon located at the top right corner of the screen.



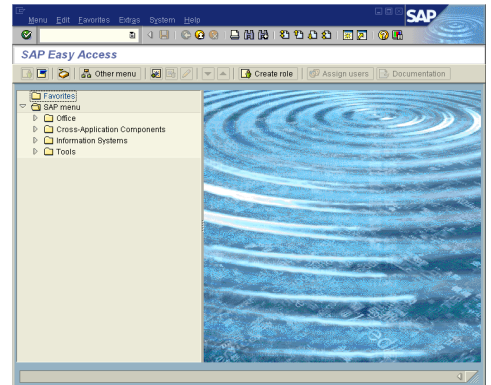
- From the **SAP R/3 System** window, click on **Start SAP Easy Access**.

This initiates the **SAP Easy Access** program.



- From the **SAP Easy Access** window, click on the **Favorites** folder, to select the existing transactions.

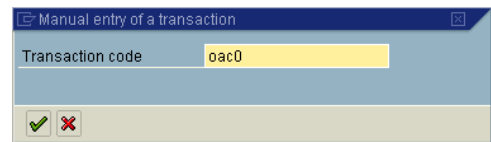
If no transactions have been created, click on **Insert** icon and select the **Transaction** option to manually invoke the required transaction.



- Clicking on **Insert** --> **Transaction** opens the **Manual entry of a transaction** pop-up window.

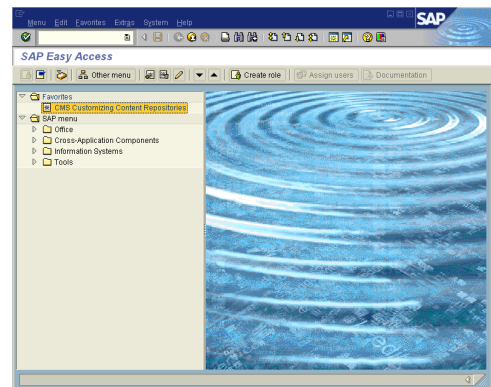
Enter the value **oac0** for the **Transaction Code**.

Click the **OK** icon.



- The **SAP Easy Access** window now has the **CMS Customizing Content Repositories** as part of the favorites folder.

Double click the **CMS Customizing Content Repositories** to create, view or edit the content repositories.



- From the **Change Content Repositories: Overview** window, you can create a new content repository, edit or delete an existing repository.

To Update an existing repository: Click on the **Display/Change** icon (shortcut key: CTRL+F4). Double click the repository you want to update. The **Change Content Repositories: Detail** window opens allowing you to edit the content.

To Delete a repository: Click on the **Display/Change** icon (shortcut key: CTRL+F4). Select the content repository you want to delete and hit the **Delete** icon (shortcut key: Shift+F2).

To Create a new repository: Click on the **Display/Change** icon (shortcut key: CTRL+F4) Now click on **Create** icon (shortcut key: F5). The **Change Content Repositories: Detail** window allows you to create a new content repository.

8. From the **Change Content Repositories: Detail** window create a new content repository.
 - Enter the Content Repository name in the **Content Rep.** field. Note that the Content Repository name should be same as the 'Site Path', created in the Create a Site section.
 - Provide a short description to the Content Repository added, in the **Description** field.
 - Select ArchiveLink from the **Document Area** drop down.
 - Select HTTP content server from the **Storage type** drop down.
 - Enter the version number in the **Version no.** field.
 - **HTTP Server:** Provide the URL to the content store webservice.
 - Enter the **Port Number** of the content store webservice.
 - The **HTTP Script** will be ObjectServer/resources/SAP.
 - In the **Transfer drctry** field, enter the path to a valid directory in the machine running the SAP GUI.

Save the newly created Content Repository via the **Save** button (floppy icon).

A Content Repository for SAP data will be created in the defined HTTP server URL provided.

9. After entering all the values as detailed in Step 8, you can validate the connection by clicking on the **Test Connection** icon.

Click on the **Status Information** icon to view the server status information of all the content repositories hosted on the HTTP Server.

Every new SAP R/3 client using the content store, has to send a certificate of acceptance by clicking the **Send Certificate** icon.

Note: Test Connection, Status Information and Send Certificate icons are highlighted with a red circle in the image.

Click on the **-->CS Admin** to navigate to the **Content Server Administration-Change** window and approve the certificate just created.

10. From the **Content Server Administration** window, select the **Certificates** tab.

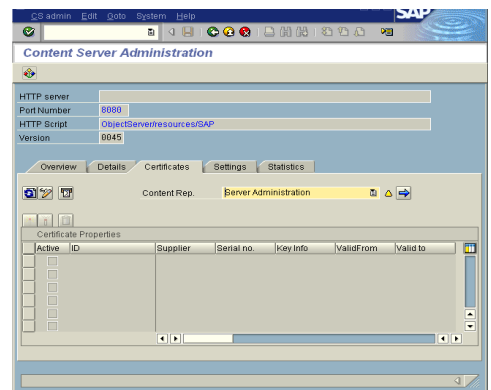
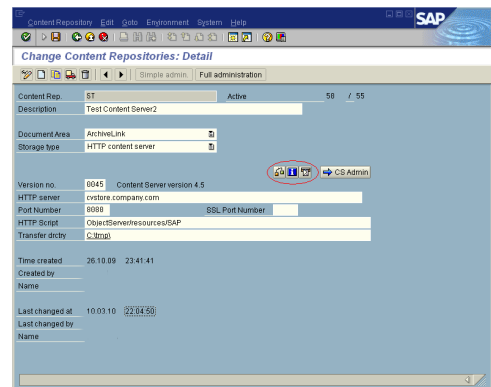
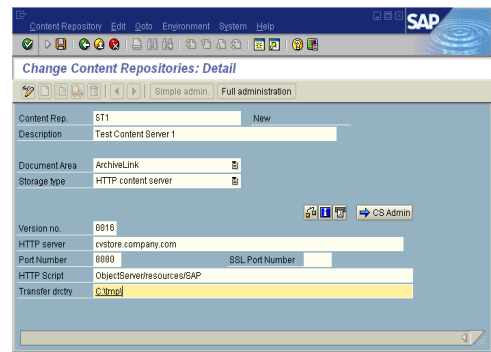
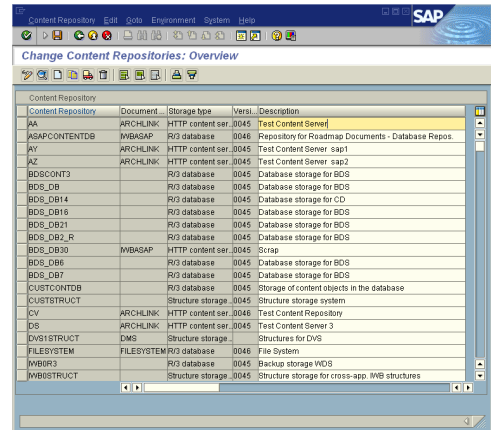
Click on the **Display<-->Change** icon to enable changes.

Select the certificate you created from the **Certificate Properties** list by checking the box.

Now activate the certificate by clicking on the **Activate** icon. Make sure all credentials are checked before activating/approving the certificate. User is not given the option to deactivate a certificate.

The **Deactivate** icon is currently disabled.

Any changes made in this page should be saved using the **Save** button (floppy icon).



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Object Link Developer's Guide

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- Update Object

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- Update Retentions

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Error Code and Description

INTRODUCTION

A content repository is the administrative entity that accesses the logical storage space for documents on a content server. Several content repositories can exist on one content server. A content repository is identified by the parameter contRep.

Data is transferred into and from the content repository using the respective URLs. URLs can also contain functions and parameters that can be interpreted by the object being addressed. The HTTP protocol here is used for communication with the Object Link. Servers and documents are addressed using URLs, and data is transferred in the request body or in the response body. The URL specifies which function is executed with a document, that is, whether the document is to be transferred from the server to the client (**get**), whether information about the document is to be included (**info**), and whether a new document is to be created (**create**). The necessary parameters for these functions are also part of the URL. This gives the user the flexibility to organize data by means of creating files, folders and components.

Currently, the Content Repository is exposed using API. You can use the API in any script/programming environment. This document presents the API and the sample usage of these APIs, to manage your data in the Object Link. The APIs can be used to directly to integrate your application into the Object Link and to manage the data generated by the application.

REPRESENTATIONAL STATE TRANSFER APPLICATION PROGRAMMING INTERFACES (REST APIs)

The APIs provide an interface between the Object Link and the user. These APIs are specific, meant to address a specific functionality, such as to create, update or delete objects in the Object Link. In certain circumstances, the documents stored within the Object Link, require a degree of protection, meaning functions executed on the document must be authenticated. In that case, for each document header, you can define whether authorization is necessary or not.

Before using the APIs, verify and ensure that you have the following:

- Created a Object Link
- Created a Site

Refer to the section, Configuration - Object Link for more information on how to configure the Object Link.

SAMPLE COMMANDS TO INVOKE THE APIS

The sample commands section, below each API can be used from the command line to submit, retrieve and perform other operations. They can also be used in a script to manage your content. The APIs can be invoked using the command line until the Graphical User Interface (GUI) is provided. The examples below use the command line tool, cURL with the appropriate arguments to initiate the corresponding APIs. You can have your own implementation, example fetch and others.

The subsequent sections provide an overview of all the available APIs used to manage your data in the Object Link.

CREATEOBJECT

DESCRIPTION	This API creates new objects in the content repository with one or more components. The parameters given below describe the component. The return value is an XML string with the file name that was uploaded, a unique document GUID and a unique document version GUID. This implies job completed successfully. If you try to create an object that already exists in the content repository, the function returns an error.
URL	/Object

HTTP METHOD	POST (multipart/form-data)	
HTTP HEADERS	PARAMETER	DESCRIPTION
	x-cv-attributes	Optional. User attributes as XML string.
	x-cv-externalID	Optional. String value that can be used as user defined identifier
	x-cv-sitename	Required. User defined value. The name of the site in the Object Server. Example: MySiteName
	x-cv-filetype	Required. The type of the file must be 'application/octet-stream'. A MIME attachment with the content type "application/octet-stream" is a binary file. Typically, it will be an application or a document that must be opened in an application, such as a spreadsheet or word processor. If the attachment has a filename extension associated with it, you may be able to tell what kind of file it is. A .exe extension, for example, indicates it is a Windows or DOS program (executable), while a file ending in .doc is meant to be opened in Microsoft Word. Valid value: application/octet-stream Default value: application/octet-stream
	x-cv-ci	Whether content indexing is required or not. Valid values are: <ul style="list-style-type: none"> • 1 if content indexing is required • 0 if content indexing is not required Default value: 1 Example: 1
	x-cv-usertoken	Required. Authentication modes. Valid value: <To be implemented> Default value: No Authentication
	x-cv-security	Optional. User defined security as XML string. Valid value: <To be implemented> Default value: No security
	x-cv-parentpath	Required. User defined value. Parent Path is an user defined value. For an object created with path: '/Mysite/MyDoc.txt', the parent path will be /Mysite. Example: /MySite
	x-cv-doctype	Required. Document Type. Value 2 denotes creating a folder. This is an invalid entry here, since user can use the command Create Folder instead. Valid values are: <ul style="list-style-type: none"> • 1 for file • 3 for component
	x-cv-retdays	Required. User defined value. Retention days for the object. If retention days is not exclusively specified by the user, the site retention time is taken. Note that the site retention period can be overwritten by the associated storage policy copies' defined retention. <ul style="list-style-type: none"> • If user wants Storage Policy retention to take precedence, the site-level retention should be set as infinite when creating a site. • If user prefers retention of the site and document to be honored, recommendation is to keep the Storage Policy retention as infinite. Valid values are: 1 to -1. Default value: Inherits the parent retention or storage policy retention. Example: 10 to indicate 10 days.
	x-cv-timestamp	Timestamp <To be implemented> Valid value: Default Value:
	<host url>	Required. User defined value. Host URL of the webservice used Example: //localhost:8080
RETURN VALUE	XML String containing file name, document GUID and document Version GUID	
RELATED COMMANDS	Create_Object, Create_Component_of_an_Object, Create_Folder	

CREATE OBJECT

DESCRIPTION	This command creates a new object in the Object Link.
RESOURCE URL	http://<host url>/ObjectServer/resources/Object
	curl -F "filename=@c:\MyDoc.txt;type=application/octet-stream" -HContent-type:multipart/form-data -Hx-cv-

EXAMPLE	userkoken:NoAuthentication -Hx-cv-timestamp:2009-11-04T16:58:42Z -Hx-cv-authkey:NoAuthentication -Hx-cv-parentpath:/MySite -Hx-cv-doctype:1 -Hx-cv-retdays:19 http://localhost:8080/ObjectServer/resources/Object
RELATED API	createObject

CREATE COMPONENT OF AN OBJECT

DESCRIPTION	This command creates a component of an object in the content server.
RESOURCE URL	http:<host url>
EXAMPLE	curl -F "filename=@c:\MyComponent.txt; type=application/octet-stream" -HContent-type:multipart/form-data -Hx-cv-userkoken:NoAuthentication -Hx-cv-timestamp:2009-11-04T16:58:42Z -Hx-cv-authkey:NoAuthentication -Hx-cv-parentpath:/MySite/MyDoc.txt -Hx-cv-doctype:3 -Hx-cv-retdays:19 -Hx-cv-ci:1 http://localhost:8080/ObjectServer/resources/Object
RELATED API	createObject

CREATE FOLDER

DESCRIPTION	This command creates a folder in the content server
RESOURCE URL	http://<host url>
EXAMPLE	curl -X PUT -HContent-type: plain/text -Hx-cv-retdays:15 --data /MySite/myfolder http://localhost:8080/ObjectServer/resources/Entity?action=createFolder
RELATED API	createObject

GETOBJECT

DESCRIPTION	This API is used to retrieve the uploaded objects from the content server. Provide the actual path for the object to be retrieved. Incomplete path returns an error code. The return value is an object in the form of application/octet-stream.	
URL	/Object?path=<docpath> <path> is the user-friendly name of the document. Example: /MySite/MyFolder/MyObject	
HTTP METHOD	GET	
HTTP HEADERS	PARAMETER	DESCRIPTION
	x-cv-docpath	Required. Full path of the file you want to retrieve. It is an user defined value. Example: /site01/Update.txt
	x-cv-versionnumber	Full path of the file you want to retrieve. It is an user defined value. Example: 2
	x-cv-docversionguid	Enter the complete document version guid obtained when the file was uploaded. Example: 90ceb4f0-38c3-11df-854c-0011431bed1b
	<target>	The path where you want to restore your file locally. Example: c:\Update.txt
	<host url>	Required. Host URL of the webservices. It is an user defined value. Example: cvstore:8080
RETURN VALUE	Object in the form of application/octet-stream	
RELATED COMMAND	Restore	

RESTORE

DESCRIPTION	Command to retrieve an object from the content server. Using this command without giving the version number, will return the latest version of the object. For restoring different versions: You can either use the version number syntax or use the docversionGUID, returned after uploading the object.
RESOURCE URL	<p>To restore the latest version: http://<host url>/ObjectServer/resources/Object <target></p> <p>To restore a specific version of the object: http://<host url> /ObjectServer/resources/Object <target></p> <p>To restore a specific version of the object using objectversion GUID: http://<host url> /ObjectServer/resources/Object <target></p>
EXAMPLES	<p>To restore the latest version: curl -Hx-cv-docpath:/site01/Update.txt http://cvstore:8080/ObjectServer/resources/Object > c:\Update.txt</p> <p>To restore a specific version of the file: (say, second version):</p>

	<pre>curl -Hx-cv-docpath:/site01/Update.txt -Hx-cv-versionnumber:2 http://cvstore:8080/ObjectServer/resources/Object> c:\Update.txt</pre> <p>Using objectversionguid to restore a file:</p> <pre>curl -Hx-cv-docpath:/site01/Update.txt -Hx-cv-docversionguid:90ceb4f0-38c3-11df-854c-0011431bed1b http://cvstore:8080/ObjectServer/resources/Object > c:\Update.txt</pre>
RELATED API	getObject

UPDATEOBJECT

DESCRIPTION	This API updates an existing object in the content server, and creates a new version. The return value is an XML string with the file name that was updated, a unique document GUID and a unique document version GUID. This implies that the job has completed successfully. If an error code is returned, update job failed to complete.	
URL	/Object	
HTTP METHOD	PUT	
HTTP HEADERS	PARAMETER	DESCRIPTION
	x-cv-sitename	Required. User defined value. The name of the site in the Object Server. Example: MySiteName
	x-cv-docguid	Required if Doc Name is not given.
	x-cv-docname	Required if Doc GUID is not given. User defined value. Example: MyDoc.txt
	x-cv-doctype	Required. Document Type. Valid values are: <ul style="list-style-type: none"> • 1 for file • 2 for folder • 3 for component
	x-cv-attributes	Optional. User attributes as XML string
	x-cv-usertoken	Optional. Used as sessionGUID. Valid value: <To be implemented> Default value: No Authentication
	x-cv-timestamp	Timestamp <To be implemented> Valid value: Default Value:
	x-cv-security	Optional. User defined security as XML string. Valid value: <To be implemented> Default value: No security
	x-cv-parentpath	Parent Path is an user defined value. For an object created with path: '/Mysite/MyDoc.txt', the parent path will be /Mysite. Example: /MySite
	x-cv-ci	Whether content indexing is required or not. Valid values are: <ul style="list-style-type: none"> • 1 if content indexing is required • 0 if content indexing is not required Default value: 1 Example: 1
	x-cv-retdays	Required. User defined value. Retention days for the object. If retention days is not exclusively specified by the user, the site retention time is taken. Note that the site retention period can be overwritten by the associated storage policy copies' defined retention. <ul style="list-style-type: none"> • If user wants Storage Policy retention to take precedence, the site-level retention should be set as infinite when creating a site. • If user prefers retention of the site and document to be honored, recommendation is to keep the Storage Policy retention as infinite. Valid values are: 1 to -1. Default value: Inherits the parent retention or storage policy retention. Example: 10 to indicate 10 days.
	<data>	User defined value. Path where data is stored. Example: c:\MyDoc.txt
	<host url>	Host URL of the webservises Example: //localhost:8080

RETURN VALUE	XML String containing file name, document GUID and document Version GUID
RELATED COMMAND	Update_Object

UPDATE OBJECT

DESCRIPTION	This command updates an object to the content server.
RESOURCE URL	http:<host url>
EXAMPLE	curl -X PUT -HContent-type:application/octet-stream -Hx-cv-userkoken:NoAuthentication -Hx-cv-timestamp:2009-11-04T16:58:42Z -Hx-cv-authkey:NoAuthentication -Hx-cv-parentpath:/MySite -Hx-cv-ci:1 -Hx-cv-docname:MyDoc.txt --data c:\MyDoc.txt http://localhost:8080/ObjectServer/resources/Object
RELATED API	updateObject

UPDATEOBJECT PROPERTIES

DESCRIPTION	The updateObject API with action values is used to update the object properties. The action values can be updateRetention and updateSecurity. User can update the retention period of an object by entering the action value as updateRetention. Similarly the security properties can be updated by using the action value, updateSecurity.	
URL	/Object?action=<value>	
HTTP METHOD	PUT	
HTTP HEADERS	PARAMETER	DESCRIPTION
	x-cv-sitename	Required. User defined value. The name of the site in the Object Server. Example: MySiteName
	x-cv-docguid	Required if Doc Name is not given.
	x-cv-docname	Required if Doc GUID is not given. User defined value. Example: MyDoc.txt
	x-cv-doctype	Required. Document Type. Valid values are: <ul style="list-style-type: none"> • 1 for file • 2 for folder • 3 for component
	x-cv-attributes	Optional. User attributes as XML string
	x-cv-usertoken	Optional. Used as sessionGUID. Valid value: <To be implemented> Default value: No Authentication
	x-cv-ci	Whether content indexing is required or not. Valid values are: <ul style="list-style-type: none"> • 1 if content indexing is required • 0 if content indexing is not required Default value: 1 Example: 1
	x-cv-retdays	Required. User defined value. Retention days for the object. If retention days is not exclusively specified by the user, the site retention time is taken. Note that the site retention period can be overwritten by the associated storage policy copies' defined retention. <ul style="list-style-type: none"> • If user wants Storage Policy retention to take precedence, the site-level retention should be set as infinite when creating a site. • If user prefers retention of the site and document to be honored, recommendation is to keep the Storage Policy retention as infinite. Valid values are: 1 to -1 Default value: Inherits the parent retention or storage policy retention. Example: 10 to indicate 10 days.
	<docpath>	User defined value, denotes the full path of the file you want to retrieve. Example: /ActiveSubSite/cleanup.txt
	<host url>	Host URL of the webservices Example: //localhost:8080
RETURN VALUE	XML String containing file name, document GUID and and document Version GUID	
RELATED COMMAND	Update_Retention	

UPDATE RETENTION

DESCRIPTION	This command updates the retention period of the object
RESOURCE URL	http:<host url>/ObjectServer/resources/Object?action=updateRetention
EXAMPLE	curl -X PUT -HContent-type:application/octet-stream -Hx-cv-docpath:/MySite/MyFile.txt -Hx-cv-retdays:15 http://localhost:8080/ObjectServer/resources/Object?action=updateRetention
RELATED API	updateObject Properties

DELETE OBJECT

DESCRIPTION	This API deletes an object from the Object Link. To delete an object from the content repository, make sure to give either the document name or the unique document GUID. After deletion an XML string is returned with a confirmation on deletion or an error code, if the doc name or doc GUID does not exist.	
URL	/Object	
HTTP METHOD	DELETE	
HTTP HEADERS	PARAMETER	DESCRIPTION
	x-cv-sitename	Required. User defined value. The name of the site in the Object Server. Example: MySiteName
	x-cv-docguid	Required if Doc Name is not given.
	x-cv-docname	Required if Doc GUID is not given. User defined value. Example: MyDoc.txt
	x-cv-doctype	Required. Document Type. Valid values are: <ul style="list-style-type: none"> • 1 for file • 2 for folder • 3 for component
	x-cv-attributes	Optional. User attributes as XML string
	x-cv-usertoken	Optional. Used as sessionGUID. Valid value: <To be implemented> Default value: No Authentication
	x-cv-docpath	Required. The complete path to the document to be deleted. Example: /MySite/MyDoc.txt
	<host url>	Required. Host URL of the webservises Example: //localhost:8080
RETURN VALUE	XML String with status	
RELATED COMMAND	Delete_Object	

DELETE OBJECT

DESCRIPTION	This command deletes an object from the content server.
RESOURCE URL	http:<host url>
EXAMPLE	curl -X DELETE -Hx-cv-docpath:/MySite/MyDoc.txt http://localhost:8080/ObjectServer/resources/Object
RELATED API	deleteObject

ERROR CODE AND DESCRIPTION

Error Code	Description
401	Authentication failed
400	QueryParam[Query parameter] not given
400	HeaderParam[header parameter] not given
500	Internal Server Error. Check logs on teh server

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Object Link in Place of Amazon s3

TABLE OF CONTENTS

Overview

Installing the Object Link

Configuring the Object Link

Adding a Client

Creating a Site

Using the Object Link APIs

OVERVIEW

You can now use Object Link repository as an alternative to Amazon repository using the Amazon Simple Storage Service (s3) like APIs exposed by the Object Link web service. If you have already created Amazon s3 friendly application(s), you can easily port and integrate your application(s) to Object Link repository and manage your data along with Bull Calypso's other data and information management product suite.

Object Link APIs define the data stored in the repository through two entities:

- **Folders**, which are the containers of documents stored in the Object Link. Amazon s3 APIs refer the folders as Buckets.
- **Documents**, which are the fundamental entities that consist of data and metadata. Amazon s3 APIs refer the documents as objects.

INSTALLING THE OBJECT LINK

For information on how to install the Object Link, refer to section: Deployment - Object Link.

CONFIGURING THE OBJECT LINK

Once the content store *iDataAgent* is installed, you must configure it to act as a repository for files to be uploaded to the Object Link server. To configure the *iDataAgent*, you must add a Object Link Client to the CommCell and create a subclient defined with sites for the repository. After the site and subclient are configured, you can integrate your application into the Object Link using the Amazon s3 like APIs provided by the Object Link web service and manage your data.

ADDING A CLIENT

This section describes how to add a client for the content store *iDataAgent* in order to define the repository on the server.

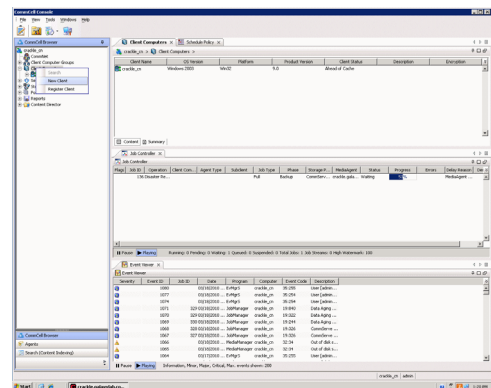
PREREQUISITES

The content store *iDataAgent* requires the following licenses:

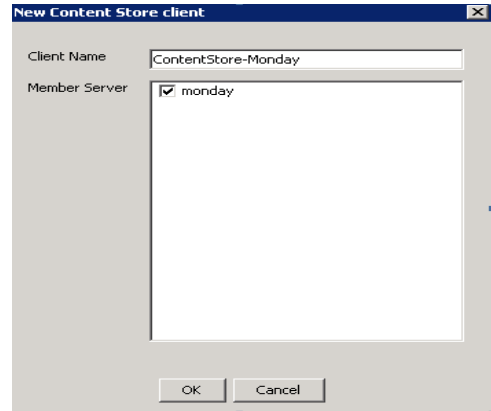
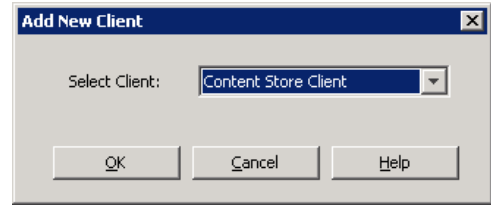
- *iDataAgent for Linux File System* - This license is consumed during the installation of the content store *iDataAgent* software.
- *Object Link* - This license is consumed when the client is configured from the CommCell Console.

To add a client:

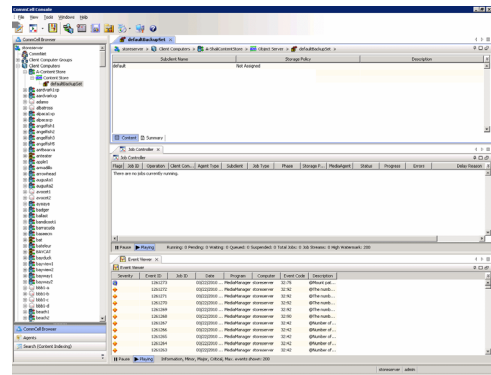
1.
 - From the CommCell Browser, navigate to **Client Computers**
 - Right-click on the client computer node, and select **New Client**.
2.
 - From the **Add New Client** dialog box, select **Content Store Client**.
 - Click **OK**.



3.
 - From the **New Content Store Client** dialog box, enter name of the Content Store client, which is how it will appear in the CommCell Console.
 - Select the member server, which is the client computer on which the Content Store iDataAgent is installed.
 - Click **OK**.



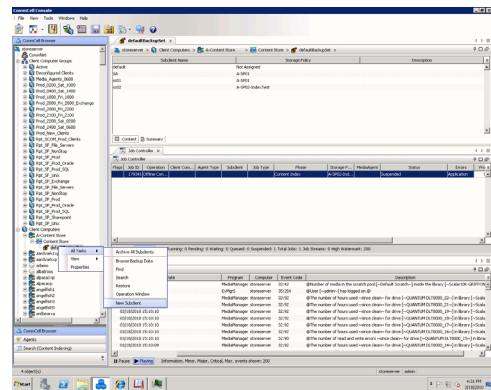
4. The Content Store client will now appear as a client computer node in the CommCell Browser.



CREATING A SITE

You need to first create a subclient before you create a site. Follow the steps given below to create a Object Link subclient and link it to the defined site:

1.
 - From the CommCell Browser, navigate to **Client Computers | Content Store**
 - Right-click the **default BackupSet | All Tasks | New Subclient**



2.
 - From **Subclient Properties | General**, enter the name of the subclient and a description if desired.
 - Select the **Storage Device** tab.

- 3.
- From the **Data Storage Policy** tab, select the storage policy to associate with the new subclient.
 - If necessary, click the **Create Storage Policy** button to create a new storage policy for this subclient.
 - Click **OK** to save the subclient.
 - Note that the subclient created has no content, since it has not yet been linked to a site.

Subclient Properties of

Security | Storage Device | Filters | Activity Control | Encryption | Content
 General | Pre/Post Process

Client Name: A-Content Store
 Billing Department:
 IDataAgent: Content Store
 Backup Set: defaultBackupSet
 Subclient name: Content Store Subclient

Description

OK Cancel Help

Subclient Properties of

General | Security | Storage Device | Filters | Activity Control | Pre/Post Process | Encryption | Content

Data Storage Policy | Data Transfer Option | Deduplication

Storage Policy:
 [Dropdown Menu] Data Paths

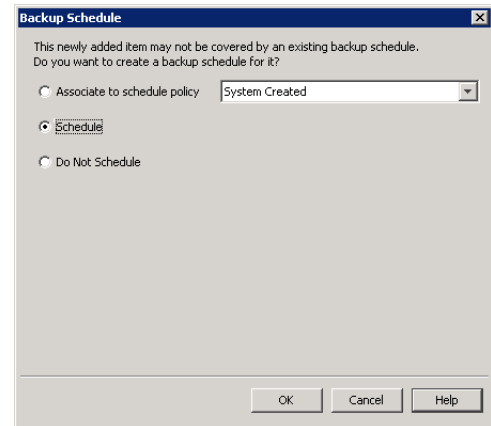
Incremental Storage Policy: N/A Data Paths

Create Storage Policy

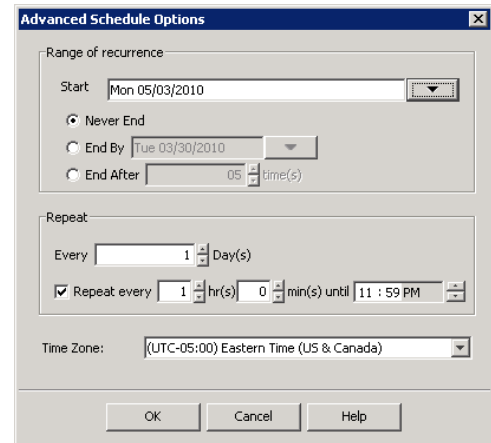
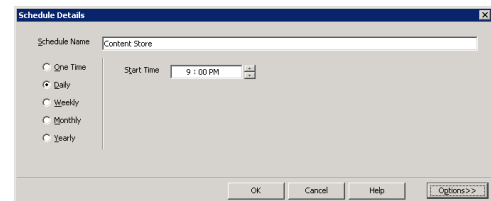
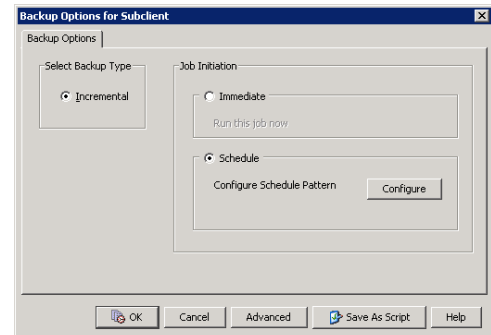
OK Cancel Help

- 4.
- Once the Content Store subclient is defined, the **Backup Schedule** dialog box is automatically launched so that you can create the schedule for the data protection operations.
 - Select **Schedule** from the options provided to specifically schedule the backup for the Content Store subclient.
 - Click **OK**.

5. From the **Backup Options** dialog box, click **Configure** to create the schedule pattern.

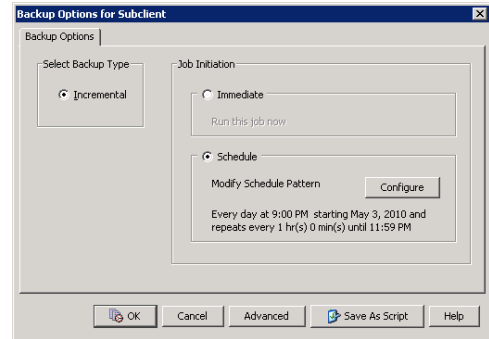


- 6.
- From the **Schedule Details** dialog box, select the type of schedule.
 - You can create a daily schedule for the backup operations of the Content Store subclient, which only supports incremental backups. An incremental backup is extremely beneficial because it contains data that is new or has changed since the last backup, consuming less media.
 - Click **Options**.
- 7.
- From the **Advanced Schedule Options** dialog box, select the pattern options.
 - With incremental backups, you can schedule backups to occur hourly by selecting the Repeat field, and specifying the values accordingly.
 - Click **OK**.

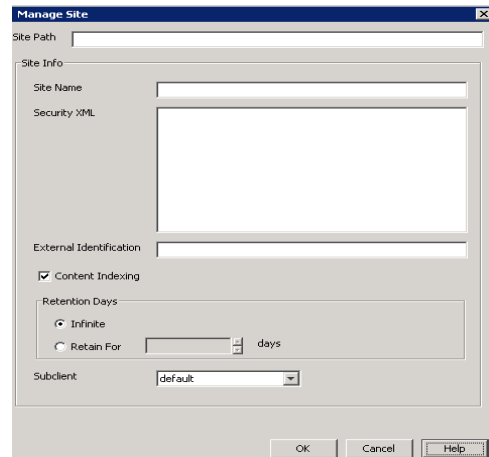
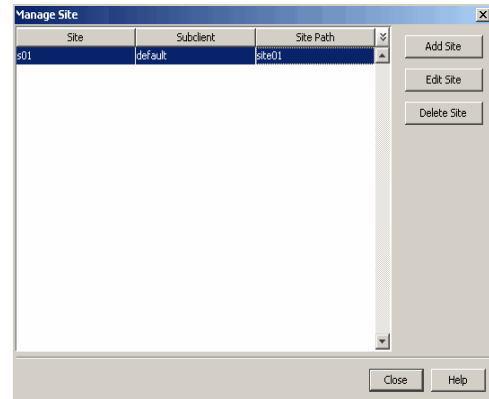


- 8.
- The defined schedule and pattern will appear on the **Backup Options** dialog box.
 - Click **OK**.

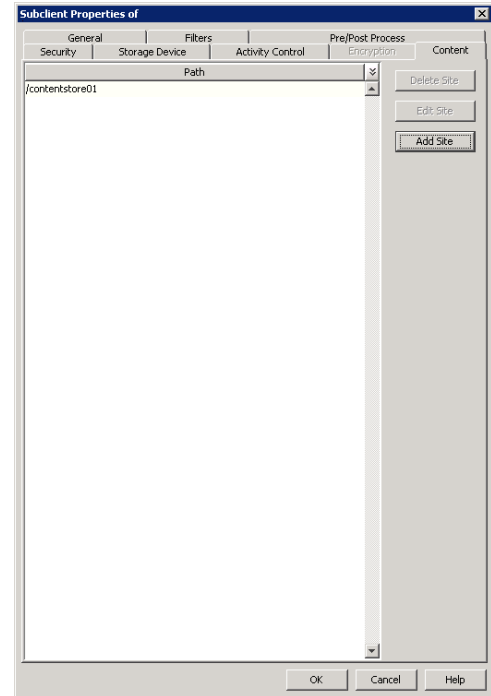
- 9.
- From the CommCell Browser, navigate to **Client Computers | Content Store**
 - Right-click the **Content Store |DataAgent | All Tasks | Manage Site**
 - The **Manage Site** dialog box appears with the following information:
 - **Site:** Displays the name of the site
 - **Subclient:** Displays the name of the subclient associated with this site
 - **Site Path:** Displays the URL or path to the site
 - Click the **Add Site** button to define a content repository.



- 10.
- From the **Add Site** dialog Box, enter the following information:
 - **URL:** Enter the directory path of the site. This is the repository on the server where the files will be uploaded. Note that the URL must be entered in the following format: `/finance_site1`.
 - **Site Name:** Enter the friendly name for the site.
 - **Security XML:** is required for the site that is created.
 - In the XML string above:
 - The **docStatus** must always be in the "running" mode.
 - The **boundary** can be any valid string so that the xml format is fixed. For example: "test content repository".
 - The **docProt** value can be a blank string, c, r, u, d or any combination of 'crud'.
 - **External Identification:** Enter the third party identifier here.
 - **Retention Days:** Specify the retention period for the site. The retention period will apply to all the contents within the repository. Note that this retention period can be overwritten by the subclient's associated storage policy copy's defined retention if defined for a longer period, unless it is overwritten by pinning the job.
 - **Subclient:** Displays a list of the available subclients, select the one to be associated with this site. The site will be added in the selected subclient.
 - Click **OK**.



- 11.
- To verify if the site you added is displayed, go to the **Path** windowpane of the **Subclient Properties - Content** tab.
 - Click **OK**.
 - The Content Store subclient is linked to the defined site as the repository.



USING THE OBJECT LINK API'S

The Object Link APIs can be invoked using the command line. You can use cURL, fetch, wget etc., as command line tools. You can also use your own implementations to initiate the APIs.

MAKING REQUESTS

You can use the following procedure to make an http request with the appropriate arguments to initiate the corresponding APIs:

1. From the command prompt, navigate to the folder where you have installed the command line tool.
2. Type the command to execute an http request using the command line as initiator. Request to the Content Store should contain a request method, a URL, request headers, and sometimes a query string and request body.

The request to create a folder in the content store should be in the format shown in the example.
3. A folder is created in the Content Server. You will receive a response message with the created folder name, folder GUID and folder version GUID.

Example:

```
C:\>cd temp\curl-7.19.5
```

```
C:\temp\curl-7.19.5>
```

Example:

```
curl -X PUT -HContent-type:plain/text -Hx-cv-retdays:15
--data /MySite/myfolder
http://localhost:8080/ObjectServer/resources/Entity?
action=createFolder
```

The following table lists the Amazon s3 APIs and the corresponding Object Link APIs:

COMMAND	AMAZON S3 API	OBJECT LINK API	DESCRIPTION
OPERATIONS ON SERVICE			
Get Service	GET / HTTP/1.1 Host: s3.amazonaws.com	GET / HTTP/1.1 Host: localhost:8080/ObjectServer/resources/S3	Lists the folders that you have created.
OPERATIONS ON BUCKETS (FOLDERS)			
Get Bucket (List Objects)	GET / HTTP/1.1 Host: BucketName.s3.amazonaws.com	GET / HTTP/1.1 Host: localhost:8080/ObjectServer /resources/S3/BucketName	Returns a list of all the documents in the folder for the bucket name you have provided in the URL.
PUT Bucket	PUT / HTTP/1.1 Host: BucketName.s3.amazonaws.com	PUT / HTTP/1.1 Host: localhost:8080/ObjectServer /resources/S3/BucketName	Create a folder with the bucket name that you have suggested in the URL.
Delete	DELETE / HTTP/1.1	DELETE / HTTP/1.1	Delete a folder, the name of which you have provided

Bucket	Host: BucketName.s3.amazonaws.com	Host: localhost:8080/ObjectServer /resources/S3/BucketName	in the URL.
OPERATIONS ON OBJECTS (DOCUMENTS)			
Get Object	GET /ObjectName HTTP/1.1 Host: BucketName.s3.amazonaws.com	GET /ObjectName HTTP/1.1 Host: localhost:8080/ObjectServer /resources/S3/BucketName	Retrieves the document or the specified version, if it exists. The version should be specified as a query parameter. Example: GET /myObject?versionId=3/L4kqTJcpXroDTDmpUMLUo
POST Object	POST /ObjectName HTTP/1.1 Host: destinationBucket.s3.amazonaws.com User-Agent: browser_data Accept: file_types	POST /ObjectName HTTP/1.1 Host: localhost:8080/ObjectServer /resources/S3/destinationBucket User-Agent: browser_data Accept: file_types	Create a document or a new version if the document already exists. In POST method, the information that is passed as headers is sent as form values. This is an alternative operation to a PUT method.
PUT Object	PUT /ObjectName?acl HTTP/1.1 Host: BucketName.s3.amazonaws.com	PUT /ObjectName HTTP/1.1 Host: localhost:8080/ObjectServer /resources/S3/BucketName	Create a document or a new version if the document already exists. In PUT method, the information is passed as HTTP headers.
Delete Object	DELETE /ObjectName HTTP/1.1 Host: BucketName.s3.amazonaws.com	DELETE /ObjectName HTTP/1.1 Host: localhost:8080/ObjectServer /resources/S3/BucketName	Delete a document or the specified version, if it exists. The version is specified as a query parameter. Example: DELETE /my-third-image.jpg?versionId=UIORUnfndfiufdisojhr398493jfdkjFJkndnqUif

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Additional Operations - Content Store Agent

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Audit Trail

Uninstalling Components

Online Help Links

RELATED TOPICS

Additional Operations - Concepts

Provides comprehensive information on additional operations procedures contained on this page.

- Audit Trail
- Uninstalling Components

AUDIT TRAIL

The Audit Trail feature allows you to track the operations of users who have access to the CommCell. This capability is useful if a detrimental operation was performed in the CommCell and the source of that operation needs to be determined.

Audit Trail tracks operations according to four severity levels:

- **Critical:** This level records operations that will result in imminent loss of data.
- **High:** This level records operations that may result in loss of data.
- **Medium:** This level records changes to the general configuration of one or more entities. Such changes may produce unintended results when operations are performed.
- **Low:** This level records changes to status, addition of entities, and other operations that have minimal impact on existing CommCell functions.

1. From the **Tools** menu in the CommCell Console, click **Control Panel**, and then select **Audit Trail**.
2. From the **Audit Trail** dialog box, select the desired retention time (in days) for each severity level.
3. Click **OK**.

UNINSTALLING COMPONENTS

Once you have uninstalled a component, you will no longer be able to perform data protection operations. The protected data, however, is still available on the media for the length of time expressed in the `Retention Time` defined in the associated Storage Policy Copy. If desired, you can browse the backup data from another active client within the same CommCell or perform data recovery operations from the component to another active client within the same CommCell.

Once you have uninstalled the component software, the corresponding icon in the CommCell Browser will appear dimmed. While this icon exists, most components can still perform data recovery operations. If you delete this icon, all of the component's data is irretrievably lost.

You cannot, however, restore the data to the component's original host computer because the necessary software is no longer present. You will have to reinstall the component software to the original computer in order to perform data recovery operations on such data. See [Reinstalling Uninstalled Agents](#) for comprehensive information on reinstalling the uninstalled agents.

If you want to browse backup data from a client computer whose component software has been removed, simply follow the standard browse procedures.

GENERAL UNINSTALL CONSIDERATIONS

Removing a component is a two-phase process:

- First, you need to uninstall the component software from the client computer hosting the software.
 - If you are unable to uninstall the component from a computer using the recommended procedures, you can use the [Deconfigure Agents](#) feature to release the license and clean up entries from the CommServe database. However, files and registry entries relating to the component will not be removed from its host computer.
- Next, you must delete the component icon from the CommCell Browser.
 - Once you decide that you won't need to browse and/or restore the data after an uninstall or deconfigure, you can manually delete the component from the CommCell Browser. Doing so invalidates the corresponding backup data which may also release backup media to the system. See [Delete the Agent](#) for step-by-step instructions.

Consider the following prior to uninstalling any component:

- Verify that the CommServe is running (except when uninstalling the CommServe software).
- Verify that no jobs are in progress or scheduled to occur while the software is being uninstalled. If jobs are scheduled, either perform the uninstall at another time or disable the jobs on the client computer using the CommCell Console.
- Verify that the CommCell Console and Service Control Manager window are closed.
- If components were not installed in the default location, you will have to manually delete the directory/folders once the uninstall is complete.
- When uninstalling software, you may need to remove additional components and drivers if any had been installed.
- If the **Authentication for Agent Installs** feature has been enabled on the CommCell, users must have Agent Management capabilities to uninstall agents. During the uninstall, users will be prompted for their account information to continue with the uninstall. If the user is not authorized, the uninstall process

will abort. For more information, see Authentication for Agent Installs.

- If uninstalling a component from the command line using an uninstall shortcut in the <software_installation_directory>\Uninstall folder, the command should not be run with the <software_installation_directory>\Uninstall folder open in the command. Instead, the command should be run with the uninstall package included in the command.

For example, the correct command would appear as follows:

```
<software_installation_directory>\Uninstall\<uninstall_package>
```

UNINSTALL SEQUENCE

When uninstalling a component on a Unix or Macintosh computer, the following sequence must be used:

1. Uninstall all application components and updates.
2. Uninstall the MediaAgent (if one exists)
3. Uninstall the Base software

Since the component software depends upon the Base software, you must uninstall the component software first.

ONLINE HELP LINKS

Use the following links to view the online help for the corresponding tabs in the CommCell Console:

OPERATIONS	ENTITY	ONLINE HELP LINKS	SUB LINKS
CONFIGURATION	Agent	Content Store Agent Properties (General) Content Store Agent Properties (Version) Content Store Agent Properties (Security) Content Store Agent Properties (Activity Control) Content Store Agent Properties (Job Retry)	
	Instance	Content Store Instance Properties (General) Content Store Instance Properties (Security)	
	Subclient	Content Store Subclient Properties (General) Content Store Subclient Properties (Contents) Content Store Subclient Properties (Pre/Post Process) Content Store Subclient Properties (Encryption) Content Store Subclient Properties (Storage Device) Content Store Subclient Properties (Filters) Content Store Subclient Properties (Activity Control) Content Store Subclient Properties (Add Path) Content Store Subclient Properties (Manage Site) Content Store Subclient Properties (Add Site)	
BACKUP	Backup Options	Content Store Backup Options	Advanced Backup Options Save As Script Command Line XML Options
	Advanced Backup Options	Content Store Advanced Backup Options (Data) Content Store Advanced Backup Options (Startup) Content Store Advanced Backup Options (Job Retry) Content Store Advanced Backup Options (Media) Content Store Advanced Backup Options (VaultTracking) Content Store Advanced Backup Options (Alert)	
RESTORE	Restore and Archive Options	Content Store Restore Options (General) Content Store Restore Options (Job Initiation)	Save As Script
Operation Window	Operation Window	Content Store Operation Window	

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Troubleshoot - Object Link Agent

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Site Creation failure due to Missing OS Libraries

Stop Postgres

Start Postgres

SITE CREATION FAILURE DUE TO MISSING OS LIBRARIES

PROBLEM

Site creation on certain machines may fail due to missing OS libraries. The libcomm_err.so.3.0.0 is missing in some Linux installations and hence the error 'failed to load LibCvSimpleDB.so' occurs.

SOLUTION

Make sure the libcomm_err.so.3.0.0 file is also installed.

UNABLE TO STOP POSTGRES

PROBLEM

Unable to stop the PostgreSQL server.

SOLUTION

For a normal stop, use the command given below:

```
stop postgres
cd /opt/PostgreSQL/8.4/bin
su postgres
```

For an immediate stop, use the command given below:

```
./pg_ctl -D /opt/PostgreSQL/8.4/data -l logfile stop -m i
```

UNABLE TO START POSTGRES

PROBLEM

Unable to start or restart the PostgreSQL server.

SOLUTION

To start the PostgreSQL server, use the command given below :

```
start postgres
cd /opt/PostgreSQL/8.4/bin
su postgres
```

To restart the PostgreSQL server, use the command given below:

```
./pg_ctl -D /opt/PostgreSQL/8.4/data -l logfile restart
```

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